Investing in the Care Economy

A gender analysis of employment stimulus in seven OECD countries

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Executive summary

Increasing public investment would stimulate employment and economic growth and provide a more effective means of moving out of recession than current austerity policies.

This report makes such a case for public investment that is in social as well as physical infrastructure. By social infrastructure we mean education, care and health services and more specifically for this report, social care activities, that is care for the elderly and disabled and for pre-school aged children. This notion of the social infrastructure includes the labour force that provides care services and its skills, as well as the buildings and facilities in which they work. By physical infrastructure we are referring to the construction sector and activities such as building housing, roads and railways, as this is the more usual outlet for the public investment called upon in times of recession in order to generate employment.

The case for public investment in times of high unemployment and pervasive underemployment derives from Keynesian macroeconomic theory. The central argument is that unemployment and underemployment are due to a **lack of effective demand in the economy** and this lack of demand deters private investment, as there is no market for the products. The government should therefore fill this gap and invest directly in the economy to boost employment and aid economic recovery. Such investment would not only ensure resources, including labour, are fully employed; it should also lead to increased productivity and higher growth rates.

Public investment will create jobs directly in the activities where the investment takes place (for example, in building houses or providing childcare services). But there will also be knock-on or **'multiplier' effects** on other sectors as jobs will be created in the industries that supply the necessary raw materials and services for the initial investment (known as the indirect employment effect). In addition the expansion of employment created by these jobs will lead to an expansion in household income, so new demand is created for a whole range of goods and services that enter household consumption, such as food, clothing, housing, care services and entertainment (known as the induced employment effect). In short, the injection of demand into the economy by government investment will generate employment directly and indirectly and have an expansionary impact on overall demand. In this way such public investment will expand demand and help lift economies out of recession.

The advantage of this strategy is that in time the initial investment should generate benefits worth far more to society than it costs and therefore could justify increased public deficit and borrowing in the initial phase. There will be savings in public expenditure from the reduction in unemployment and social security payments that otherwise would have to be made; the newly employed people will pay tax and in the longer term there will be returns from the investments themselves. In the example given of bridges and care services, these returns would arise from shorter journey times and a healthier more productive population.[1]

Conventionally, governments adopting a public investment strategy have invested in physical infrastructure, such as roads and bridges, as they increase the wealth of society as a whole and generate benefits that accrue over time. In this report we show that there are similar, albeit more gender equal, gains to be made by investing in social infrastructure, and specifically the caring industries. Investing in education and childcare similarly benefits society as a whole and these benefits are generated over time as 'better educated and cared for children grow into more productive happier adults. For these reasons we refer to investment in the caring industries as investment in social infrastructure' (Himmelweit, forthcoming).

In this report we present the theoretical arguments, evidence from case studies and findings from our own empirical research on the employment effects for men and women of investing in social infrastructure. We make the case for public investment at times of low growth, high unemployment and pervasive underemployment. We highlight the significance of investing in the caring infrastructure, as well as in physical infrastructure; review the growing body of supporting research evidence and provide new empirical findings from our seven - country analysis (of Australia, Denmark, Germany, Italy, Japan, UK and US) which estimates the employment impact of increased public investment in the construction and care industries.

Our analysis shows that investing in either the construction or care industries would generate substantial increases in employment. If 2% of GDP was invested in the care industry, and there was sufficient spare capacity for that increased investment to be met without transforming the industry or the supply of labour to other industries, increases in overall employment ranging from 2.4% to 6.1% would be generated depending on the country. This would mean that nearly 13 million new jobs would be

1 This strategy, as Paul Krugman (2015) notes, is the textbook Keynesian response to recession and indeed has been followed by many governments in the past and was the initial response by the G20 in response to the 2008 crisis, though less evident in the European Union's Stability and Growth Pact or in the UKs continued pursuit of austerity, both of which are influenced by neoliberal economic thinking.

created in the US, 3.5 million in Japan, nearly 2 million in Germany, 1.5 million in the UK, 1 million in Italy, 600,000 in Australia and nearly 120,000 in Denmark. As a consequence the employment rate of women would increase by 3.3 to 8.2 percentage points (and by 1.4 to 4.0 percentage points for men) and the gender gap in employment would be reduced (by between half in the US and 10% in Japan and Italy), the precise amounts depending on specific country characteristics. A similar level of investment in the construction industries would also generate new jobs, but approximately only half as many and would increase rather than decrease the gender gap in employment (see Tables 13, 14 and 15).

Besides creating new jobs, investment in both childcare and social care would help tackle some of the central economic and social problems confronting contemporary societies: low productivity, the care deficit, demographic changes and continuing gender inequality in paid and unpaid work.

Our findings show that governments seeking to expand employment would do well to increase public investment in the economy and that there are strong arguments for more of this investment being in the caring infrastructure than is currently the case. Investment in the care industry, in addition to creating a higher number of jobs, would also address the care deficit and reduce gender inequality. Such a policy would contribute towards creating a more inclusive model of development as well as lifting economies out of recession.

Introduction

Increasing public investment would boost employment and economic growth and provide a more effective means of moving out of recession than current austerity policies.

In this report we make such a case for public investment that is in social as well as physical infrastructure. By investment in social infrastructure we mean investment in education, health and social care services. Physical infrastructure refers to the construction sector and activities such as building housing, roads and railways and has been the more usual outlet for the public investment called upon in times of recession and high unemployment.

We begin by reviewing the theoretical arguments for increased public investment, and specifically investment in social infrastructure, in the context of low economic growth, high unemployment and enduring gender inequality. We consider the broader case for investment in social infrastructure in terms of narrowing the gender employment gap and contributing to resolving the care deficit identified in most OECD countries. We then review a number of studies which have identified positive impacts from investment in social infrastructure before presenting the findings from our own analysis.

Our empirical investigation is of seven high-income OECD countries: Australia, Denmark, Germany, Italy, Japan, UK and US, chosen to reflect different regions of the world, different systems of economic and social regulation and because of data availability. We develop a quantitative tool using input-output tables and official statistics to estimate the direct and indirect employment effects of an increase of public investment in both the construction sector and the care industries (child and social care) as examples of physical and social infrastructure respectively. Our findings show that both forms of investment would generate new jobs, while investment in the care industries would generate approximately twice as many jobs as investment in the construction sector.

More specifically, if 2% of GDP were invested in caring industries, we estimate that it would generate increases in overall employment ranging from 2.4% to 6.1% depending on the country. Nearly 13 million jobs would be created in the US, 3.5 million in Japan; between nearly 1 million in Italy to just over 2 million in Germany, and 1.5 million in the UK; 600,000 in Australia and nearly 120,000 in Denmark.

We estimate that the majority of jobs created would be taken up by women (between 59% and 70% across the countries studied), reflecting in part the current concentration of women in the care industries. However, because of the impact of the multiplier effect, many of the jobs created would be outside the care sector, and so investment in the care industries would lead to increases in jobs for men as well as for women. We find that the employment rate of women would increase by between 3.3 and 8.2 percentage points and that of men by between 1.4 and 4.0 percentage points, so that the overall gender gap in employment would be reduced by between 1.6 and 4.2 percentage points, depending on the labour market characteristics of specific countries.

We conclude that countries seeking to boost employment could invest in social infrastructure, exemplified by social care services (which tend in political discourse to be neglected as a form of social investment compared to health or education), as well as in traditional forms of physical infrastructure. Such investment would also contribute towards greater gender equality by reducing employment gaps, improving working conditions in the care sector and increasing the options for informal carers to juggle paid work and caring.

> **“The boom, not the slump is the right time for austerity at the Treasury”**
>
> John Maynard Keynes (1937: 390)

The Economic Rationale for Public Investment in Contemporary Times

Background

Contemporary economies are emerging slowly and unevenly from the financial crisis of 2008 and the deepest recession ever recorded. To prevent overall economic collapse the G20 countries initially coordinated an expansionary response which first made money available to rescue the banks and later tried to sustain their lending activities via quantitative easing in the hope that this would stimulate the private sector. In addition there was some public investment in physical infrastructure, that is, in the construction industries for building new roads and bridges, to promote increases in employment and, especially in male employment, which initially suffered more from the recession. No attention was paid to the social or gender impact of this strategy, for example, to how particular social groups were likely to be affected by the support for banks. In the European Union's Economic Recovery Plan, for example, no mention was made of its potential gender impact, even though gender mainstreaming remains official EU policy (Bettio et al., 2012).

By 2010 there were a few small signs of recovery. However, governments became concerned about the high level of government spending and size of the sovereign debt. From 2010 onwards many governments across the globe simultaneously, though without coordination, embarked on austerity policies in an attempt to reduce the size of their public sector deficit and debt. This reduction was seen as a matter of economic survival and little attention was given to the negative impacts on economic growth and employment, to how different social groups were affected or to impacts on gender, or any other type of, equality.

Subsequently, the severity of austerity policies has varied between countries. In the US the government has continued to invest in physical infrastructure during this period and the reduction in economic growth has been less pronounced than in the UK, for example, but cuts were made elsewhere, especially in social spending (Seguino, 2015). The UK government has continued to stress austerity and the need to eliminate the public sector deficit and debt, though between 2012 and 2014 pursued a balanced rather than contractionary budget policy. It hoped to stimulate the economy by reducing the personal income and business taxes and boosting the housing market, but financed these through cuts in government services and social security payments. This strategy has yet to prove successful and has had highly regressive distributional consequences with especially negative impacts for women pensioners and lone parents (WBG, 2015; Krugman, 2015; De Agostini et al., 2015).

The public sector cutbacks have had particularly negative implications for women because in many countries, women are more likely than men to work in the public sector, more likely to be the users of government services and more likely to be the ones who have to fill the gap when the services are withdrawn, described by the UK Fawcett Society as the triple jeopardy. In Europe foreign-born

women and in the US 'women of color' were the ones who were worst affected (Seguino, 2015). Analyses carried out by the House of Commons library and the Women's Budget Group in the UK show that the impact of cuts in public expenditure and social security have fallen mainly on women; in the Conservative Party Summer 2015 budget the proportion paid for by women was estimated to be as much as 78.9% (House of Commons Library Research Findings, 2015).

This reversal of policy from public sector support for the economy and expansionary policies to austerity was justified in part by two academic papers. One (Reinart and Rogoff, 2010) predicted a dramatic decline in economic growth if public debt exceeded 90% of GDP, while a second paper (Rosnik and Baker, 2012) maintained that if the public deficit and debt were reduced there would be a significant increase in business 'confidence' that would generate new investment and greater growth — an idea that became known as (the oxymoronic) 'expansionary fiscal contraction'. However, these academic papers were subsequently shown to contain very basic flaws (Krugman, 2013; Herndon et al., 2014). In addition, the IMF recognised that they had underestimated the highly negative impact of reductions in public expenditure on the economy (Blanchard and Leigh, 2013). Some policymakers then began to rethink and pay more attention to alternative policies that advocate state investment expenditure at times of low growth.[2]

Contrasting economic theories: the case for public investment in place of quantitative aasing or tax cuts

There are two contrasting approaches to try and stimulate economies in conditions of recession, low growth and high unemployment: on the one hand quantitative easing – a form of monetary policy and on the other hand direct public investment in the economy – a form of fiscal policy.

Quantitative Easing — Monetary Policy

The current policies pursued by many countries focus on deficit and debt reduction aimed at keeping interest rates low to restore the confidence of private investors. They are associated with neoliberalism; which stresses the efficacy of liberalisation, self-regulating markets and balanced budgets and insists that problems in economic functioning are to be sought in the state rather than in the market, in particular that the state is too large and inefficient.

Hence fiscal policy is oriented towards the reduction of state expenditure (which otherwise would crowd out private investment) and the reduction of the tax burden on individuals and firms in order to put more 'money in people's pockets' and allow firms to keep more of their profits for investment. However, tax reductions have to be offset by cuts elsewhere in order to maintain the deficit under control. So the tax cuts are matched by cuts in public services and social security payments, thereby withdrawing money from people's pockets and leading to the negative distributional and gendered consequences outlined above.[3]

In this context, the only way that monetary policy can be used to stimulate investment when interest rates are already low is through quantitative easing. Effectively the government prints money and releases funds to the banks (by buying their bonds) with the intention of stimulating bank lending and boosting private sector investment.

To date neither quantitative easing nor tax cuts have proved to be very successful. Private sector investors need to know that their products will be sold and for this they need effective demand (that is demand for products that is matched by the ability to pay for them). People benefiting from reduced taxes may face other constraints and uncertainties that inhibit their willingness to spend more (job insecurity, loss of public services that enable them to take jobs, etc.). So people and firms have in practice used their additional funds for saving or to pay off existing debts, and may have needed to replace public services being cut by providing additional unpaid work and hence reducing their earnings, none of which helps promote economic growth or employment.

Direct Public Investment – Fiscal Policy

This second approach underpins the perspective analysed in this report. The case for public investment at times of high unemployment and low growth derives from Keynesian macroeconomic theory. The central argument is that low growth and high unemployment are due to a lack of effective demand in the economy and this deters private investment. The government should therefore fill this gap and invest directly in the economy to boost employment and aid economic recovery, which could be achieved without stoking inflation provided there is spare capacity in the economy.

Public investment will create jobs directly in the activity where the investment takes place (for example, in building a bridge or providing care services) but in addition there will be a knock on or 'multiplier' effect on other sectors. Jobs will also be created in the industries that supply the necessary raw materials and intermediate services for the investment. Such demand and employment effects will ripple down the supply chain, generating indirect employment in many industries (including within the industry/ies in which the original investment was made). These are known as the indirect employment effects, and they multiply the direct employment effect of the original investment so that the overall degree of employment generation from any increase in investment will be larger than the immediate or direct effect of the initial investment project.

2 European Union Countries are bound by the Stability and Growth Pact which limits the public sector deficit to no more than 3% and public debt no greater than 60% of GDP. By 2014, twelve member states were still above the deficit guidelines and 18 above those for debt. Eurostat (2015) Statistics Explained. Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Public_balance_and_general_government_debt,_2011%E2%80%9314_(%C2%B9)_(%25_of_GDP)_YB15_II.png. Interestingly the countries that meet the debt requirements are all new member states.

3 In the UK both the Coalition government 2010-15 and new Conservative governments have simultaneously cut personal income tax and reduced public sector services and social security payments – policies whose gender effects are documented by the Women's Budget Group see e.g., WBG 2013 Budget Report at: http://wbg.org.uk/2013-a-budget-for-inequality-and-recession/

In addition the expansion of employment created by these jobs will lead to an expansion in household income, so new demand is created for a whole range of goods and services such as food, clothing, caring services and leisure that enter household consumption which will generate further employment (known as the induced employment effect). Through direct, indirect and induced employment effects, the injection of demand into the economy by government investment will generate employment and have an expansionary impact on overall demand and so help lift the economy out of recession.

In time the initial investment should generate benefits worth far more to society than it costs as a consequence of the demand generated elsewhere in the economy. There will be savings in public expenditure from the reduction in unemployment or social security payments that otherwise would have to be made; the newly employed people will pay tax and in the longer term there will be returns from the investments themselves. In the examples given of bridges or care services, these returns would arise from shorter journey times or a healthier more productive population. If there are concerns that these returns will take too long to materialise and that the immediate impact of government investment will be to increase the deficit and debt by too great an amount, then a government - sponsored investment bank could be set up to directly encourage private investment.[4]

These arguments are not new but date back to the 1930s when John Maynard Keynes offered a solution to the 1930s recession. Keynes is renowned for saying that the kind of public investment does not matter. He argued that even if people were employed to dig holes and then to fill them it would have a beneficial effect on the economy as a consequence of the multiplier effects as explained above. Specifically Keynes argued that:

> *"If the Treasury were to fill old bottles with banknotes, bury them at suitable depths in disused coalmines which are then filled up to the surface with town rubbish, and leave it to private enterprise on well-tried principles of laissez-faire to dig the notes up again (the right to do so being obtained, of course, by tendering for leases of the note-bearing territory), there need be no more unemployment and, with the help of the repercussions, the real income of the community, and its capital wealth also, would probably become a good deal greater than it actually is. It would, indeed, be more sensible to build houses and the like; but if there are political and practical difficulties in the way of this, the above would be better than nothing." (Keynes, 2007/1936: 129)*

More recently in a similar vein Robert Skidelsky and Felix Martin point out that

> *In the short run, it doesn't matter whether the increase in aggregate demand takes the form of employing people to dig holes and fill them up again, giving every household a time-limited spending voucher or building a new railway. All that matters is that the overall level of spending in the economy is maintained – so that unemployment stops rising and with any luck, begins to fall again. But from any long term point of view, increasing aggregate demand by capital investment is better, because it creates identifiable future assets that promise to fund themselves and improve growth potential. (Skidelsky and Martin, 2012)*

Capital investment could therefore take place in infrastructure projects that generate benefits to society as a whole as well as for their direct users, and these benefits will be enduring so the projects will generate positive benefits into the future.

Gender bias in economic thinking

The idea that public investment should fund projects with enduring and widespread benefits is reflected in regulations set by states or by the European Union that limit the permissible levels of debt and deficit, but allow these limits to be exceeded if the expenditure is for capital investment rather than current expenditure. The distinction between the two types of expenditure is made in the System of National Accounts. The first counts as capital stock, whereas the second is considered as government annual current spending, part of GDP. This distinction reflects a gender bias in economic thinking and accounting. While investment in physical infrastructure such as in building bridges, schools, hospitals or nurseries would be permitted and this would therefore include the wages of the builders, the funding for running the schools, hospitals and nurseries, and so the wages of teachers, nurses and childcare workers, would not. The SNA classification fails to recognise the long-term productive contribution of the social infrastructure that employment in the teaching and caring industries builds, through creating and maintaining the stock of "human capital".

Everyone gains from having a better educated, healthier and better cared for population and society, and the economy will continue to benefit from today's spending on health education and childcare well into the future. For these reasons we term this form of expenditure investment in social infrastructure. Governments began to recognise, from the mid-2000s, that spending on education and health could be seen as social investment because it improves the productive capacity of the economy, but they did not consider changing the accounting rules that would allow such expenditure to be counted as capital spending. Nor, indeed, did they see social care services in the same way, especially care for the elderly, where the link between spending and (re)building productive

4 Robert Skidelsky and Felix Martin (2012) suggest government sponsored banks along the lines of the European Investment Bank, the Nordic Investment Bank or the German Kreditanstalt für Wiederaufbau. The difference between this strategy and quantitative easing is that the funds would all be spent (and on approved projects).

capacity is less obvious than in the case of education.[5] Moreover this form of expenditure is rarely considered as a suitable form of investment when policy makers are looking for effective forms of employment generation in recessionary times. In fact the opposite has happened and public expenditure on education, health, childcare and social care services has been cut in many countries as part of their deficit reduction strategies, though the extent of these cuts varies between countries.

This neglect of social infrastructure projects reflects a gender bias in economic thinking and may derive from the gender division of labour and gender employment segregation, with women being over represented in caring work, and men over represented in construction. Investment in social infrastructure is more likely to generate jobs for women while jobs generated by investment in physical infrastructure go largely to men. Male unemployment is often seen to be a more urgent problem as men are assumed to be breadwinners, despite the fact that increasingly many multiple or dual person households rely on more than one income. However, many governments are committed to gender equality and in some cases have a legal duty to reduce gender inequalities. It is therefore incumbent on them to ensure that if employment generation projects are to include some that generate more jobs for men than women, they must at the very least counterbalance these by other projects that generate more jobs for women than for men. Otherwise the gender employment gap will increase.

There is also an efficiency argument for investing in social infrastructure in addition to physical infrastructure as an employment stimulus tool. Our empirical analysis shows for a similar amount of investment in the caring industries and in the construction industries more jobs, even on a full time equivalent measure, are created overall – and the gender gap in employment reduced, not increased – by investing in the caring industries.

Before proceeding to our own findings, we briefly outline the wider case for investing in social infrastructure, as well as present the findings from other studies which also show the relative value of investment in social infrastructure.

Economic and social contributions of caring industries

Public investment in social infrastructure makes economic sense, as it not only generates employment, but also contributes to gender equality and human development (Antonopoulos and Kim, 2011).

The provision of collectivised care services, child and elder care, not only directly creates jobs in the care industry, it also frees others to take on other jobs. This is because collectivised modes of care provision, either in nurseries or elder care homes, and even organised services provided in individual homes, are generally more productive than individualised care within the family. In particular, collective care provision enables a greater labour market participation of women, who in its absence are likely to be the ones caring at home.

Public investment in caring also contributes to resolving the care deficit that arises because more women are in paid employment than ever before but men have not increased the amount of domestic work or caring they do sufficiently to make up the difference. Moreover, because of greater mobility, families are living further apart geographically, so that relying on grandparents to look after their grandchildren or adult children to care for their elderly parents intensively has become increasingly difficult.

Further, provided it is properly funded and regulated, public provision also contributes to the well-being of children by increasing their learning opportunities and social development and integration.

Women are more likely than men to take up jobs created in care services because of continuing industrial and occupational segregation. They are also more likely to be prepared to take employment of any type once high quality and affordable care services are available to reduce the unpaid care responsibilities that remain one of the main constraints to women's greater participation in paid employment. The extent to which investment in care services eventually reduces gender segregation will depend on the extent to which men are incentivised to take up jobs in the care sector, which improved wage conditions might encourage. In any case the initial effect of investing in social infrastructure would contribute to narrowing the gender employment gap and the gender gap in time devoted to unpaid care.

Potentially public provision of care would also narrow social divisions by enabling low-earning women to enter the workforce or increase their working hours and thus their incomes. Without such provision low - paid women are deterred by the high costs of private care provision that higher earning women may be able to afford (Esping-Andersen, 2009). Resulting increases in women's lifetime earnings and pension entitlements would reduce the gender gap in poverty rates, another contribution towards narrowing gendered economic inequalities. Public provision of high quality childcare can also narrow social divisions if they result in children from different backgrounds being cared for together.

These arguments have been made by feminist economists (Elson et al., 2013), organisations such as the Women's Budget Group in their Feminist F plan for recovery and supporters of the Purple Economy (Ilkkaracan, 2013), who also recognise that society depends on care as 'an indispensable component of human well-being' (ibid., p.32) so the public provision of social infrastructure is crucial for economic development.

5 However, a long-term care system could be seen as a contract between generations and an insurance system for the population as a whole to cover any care needs they might have in the future. Paying for such a system would then be an investment in the well-being of the whole population, who would be able to get on with contributing to society in other ways, reassured that their own and their own and their relatives' care needs will be well provided for.

Gender sensitive socially inclusive macroeconomic policies make economic sense: findings from existing research evidence

The idea of investment in the caring industries and social infrastructure is comparatively new but evidence of its effectiveness is now beginning to emerge. In addition, some governments have been following this approach.

From 1997 the Republic of Korea has recognised the importance of investing in child care taking the view that early childhood education is 'the best educational investment' a country can make in 'building a foundation of holistic development of human beings' (Peng, 2009: 16). In addition it was thought that such investment would reduce families' financial burdens, raise women's social and economic participation and that this 'socialization of child and elderly care would create new economic growth engines' (Ibid.: 34). In this case the government seems to have recognised that there can be harmony between economic and social objectives.

The Korean example is not isolated; the European Union has repeatedly argued in favour of the instrumental social investment state, with investment in education and health (and childcare) to secure the future workers' productivity and thus economic competitiveness. The Barcelona Summit in 2002 set an ambitious childcare enrolment target for all member states to achieve by 2010; this was seen as a key instrument of boosting female employment (see country profiles). In particular Germany has stepped up its level of investment in childcare since the mid-2000s. Japan, faced with a rapidly ageing population and very low fertility, has also embarked on substantive reforms to boost childcare coverage. Long-term care on the other hand was somewhat left out of this vision of social investment, as the efficiency argument of boosting the productivity of its direct beneficiaries could not be made in the same terms even in the long-term. However provision of high quality adult long-term care services does contribute to the economy through improving the health and autonomy not only of recipients but also of informal carers.

Photo: ILO

Informal carers could be freed to pursue other 'productive' activities. High - quality care provision would keep all workers free from the stress of having to care for their elderly relatives or worrying about how their own future care needs would be met, thereby creating a virtuous social contract between groups and generations.

Consultants ICF GHK (2015) focused on identifying the economic contribution of adult social care in England. In this case by social care they are referring only to care for the elderly. They estimated the Direct Economic Value of the Sector itself, the Indirect Economic Value as a consequence of the demand it generates for goods and services from other sectors, and, finally the Induced Economic Value as a consequence of all these workers spending their earnings.

They found that including all these effects the social care sector leads to 1.5 million workers (1.3 million full time equivalent, which is 6.4% of the workforce) being employed and generates Gross Value Added (GVA) of £20 billion or 1.8 % of total national output. This overall number of employees is marginally higher than the numbers generated by construction, transportation or public administration. In addition the social care sector generates more GVA than the legal sector, the production and distribution of electricity and gas or the arts, entertainment and recreation industries. The point of the analysis, which was carried out for an employer-led agency, was to highlight the comparative significance of social care.

Using a parallel form of analysis to our own empirical investigation, Rania Antonopoulos and Kijong Kim (2011) investigate the effects of investment in social care (by which they mean child care and social care for the elderly), in South Africa and the United States. As part of their analysis they estimate the impact of an investment equivalent to 1% of GDP in social care compared to a similar investment in physical infrastructure and calculate the direct and indirect employment impact (but not induced effects), and the distribution of these jobs by gender and income group.

In both countries they find that the number of jobs created by investment in social care is approximately twice as many as those generated by a similar level of investment in physical infrastructure, in line with our results for the US.[6] They also find that the gender composition of the jobs fits the stereotypical pattern with the jobs generated by investment in social care being disproportionately taken by women and the physical infrastructure jobs being taken by men. What is particularly striking in the South African simulation is that women take only 55% of the jobs generated by investment in social care – taking directly and indirectly generated jobs together. In comparison women take only 18% of the jobs generated by investment in physical infrastructure. Thus while most of the jobs directly created in social care go to women, in this case jobs for men are also created to a greater extent following investment in social care than in physical infrastructure[7].

Such findings are supported by the work of Hannah Bargawi and Giovanni Cozzi (2014) — using the Cambridge-Alphametrics macro-simulation Model (CAM). Their study investigates the feasibility of alternatives to austerity for the Eurozone. They find that it is possible to have economic growth, an expansion of employment (with a bias towards female employment) and yet lower the public debt and deficits. Indeed, this model estimates that a gender-sensitive macroeconomic scenario based on an expansion of government investment and expenditure and targeted at female employment would produce better outcomes in terms of EU economic and social objectives than the 'business-as-usual' approach of pursuing austerity. More specifically, they find that investment that specifically targeted female employment would result in higher levels of employment overall, higher levels of economic growth and a greater reduction in debt as well as greater reductions in the employment gap between men and women.

So there is growing evidence to suggest that it is possible to have gender sensitive policies and economic growth – indeed these findings suggest that gender equitable policies that contribute to human development also make economic sense. Our empirical analysis that follows investigates this idea further by contrasting the differential impact of public investment in social infrastructure compared to physical infrastructure for seven OECD countries.

Photo: www.nurses-forum.com

6 Specifically their results come from ex-ante policy simulation results. Both social accounting matrix-based multiplier analysis and propensity ranking-based microsimulation provide evidence of the pro-poor impacts of the social care expansion.
7 Since for every 100 jobs created in physical infrastructure (82 for men), 200 are created in social care (and thus 45%*200=90 for men).

Overview of the countries studied

Care systems

A summary of each country's care regime is provided in Appendix 1. Overall, the seven countries chosen for this analysis differ in the extent to which the state intervenes directly in providing care services for its population, both for preschool children and for adults needing help with daily activities. Following the traditional welfare regime typology identified in the literature, Denmark stands out from the pack for having a well developed, social-democratic provision of care services that are affordable, publicly-run or subsidised and of high quality and reach. The UK, Australia and the US, usually classified as liberal regimes, do not provide substantial state services and when they have financial support in place, it tends to be by using transfers to families or care recipients to purchase services on the market. Germany, Japan and Italy – not always grouped together in welfare regime analyses depending on the range of social policies that are considered – have traditionally relied on family members (mainly women) to provide care to children and elderly at home. These informal carers are untrained but not always unpaid; some financial support for stay-at-home carers has been made available, especially in Germany. However, in recent years, Germany and Japan have implemented social insurance systems to provide for long-term care, while investing directly in the provision of childcare services, while Italy only pushed for more public services in childcare.

In all countries but Denmark the provision of care remains insufficient and many women still provide the bulk of care to both adults and children. Affordability of care and thus access for low income families is the main issue in the UK and the US, although in some cases availability of services, especially of childcare, is also of major concern. In the other countries it is more an issue of availability of places and opening hours rather than fees, as existing services are better subsidised but are scarce.

Table 1 shows figures for public spending on childcare and enrolment rates for children under the age of five. In all countries enrolment rates reflect availability of spaces, as there is excess demand. Enrolment rates for children aged 3-5 are considerably higher than for children aged 0-2. Note that, for Australia and the UK, average weekly hours of use of childcare for both age groups is considerably lower than in other countries.

Note that we do not have data for private spending on childcare, although the totals in the first two columns of Table 1 include public cash transfers (childcare subsidies) to parents to pay for private childcare services. Out of pocket remaining fees vary from 0% of a typical dual-earner family's net income in Denmark and Germany to 50% in the US (OECD Family Database, 2014).

Table 1 Summary indicators of childcare provision

	ECEC	Chi 0-5	Children 0-2		Children 3-5	
	Public spending % GDP	Public spending % GDP	Enrolment % chi	Average hours	Enrolment % chi	Average hours
Australia	0.38	0.59	31	22	65	13
Denmark	1.51	1.51	74	35	96	34
Germany	0.49	0.49	24	30	94	28
Italy	0.62	0.62	26	31	95	33
Japan	0.13	0.13	26	35	89	25
United Kingdom	0.44	0.82	35	14	94	20
United States	0.37	0.37	26	32	70	32

Notes: (1) OECD family database figures on public spending for Japan (0.45), UK (1.1) and Denmark (2.0) are higher because they include spending on social services and child protection. (2) Figures for Australia and UK in second column include primary education spending for children aged 5.
Source: see Appendix 1 for country profiles.

Spending on adult long-term care is more difficult to estimate, so Table 2 provides a summary of different sources and the combined estimate of public spending on long-term care services. Public spending on long-term care services constitutes a larger share of GDP than childcare services. Note that private spending (households' out-of-pocket spending), as measured in the OECD social expenditure database and the Eurostat health expenditure database, is lower than public expenditure. As detailed in the country profiles in Appendix 1, the majority of long-term care is still provided by informal unpaid carers, mainly the partner or child(ren) of the person in need. In Denmark, 52% of dependents did not use any formal LTC services in 2010 compared with 72% in Germany, 74% in the UK and 76% in Italy (Lipszyc et al., 2012).

Table 2 Public and private spending on long-term care (various sources)

	OECD SOCX		Eurostat		Lipszyc et al. 2012		Estimate
	LTC 2011		LTC 2011		LTC 2010		LTC 2011
	Public in-kind % GDP	Private in-kind % GDP	Public in-kind % GDP	Private in-kind % GDP	Public in-kind % GDP	Public cash % GDP	Public in-kind % GDP
Australia	0.887	0.005	0.10	0.01	-	-	0.80
Denmark	2.300	0.185	2.35	0.19	2.47	2.04	2.35
Germany	1.545	0.524	1.02	0.39	0.98	0.45	1.02
Italy	-	-	-	-	1.04	0.86	1.04
Japan	0.781	0.129	1.87	0.23	-	-	1.87
United Kingdom	-	-	-	-	1.42	0.56	1.42
United States	0.578	0.384	0.57	0.39	-	-	0.57

Source: see Appendix 1 for country profiles

As in the case of childcare, Denmark stands out by spending proportionately much more on long-term care than other countries, followed by Japan. In Japan, a large share of public spending is directed towards the social component of the long-term care services (that is help with instrumental activities such as cleaning and cooking) as opposed to the health component of nursing care (including personal hygiene), which constitutes the bulk of public spending in most countries.

Labour markets

In part reflecting differences in care provision, the employment patterns of men and women in the seven countries studied show that both more employment and greater hours of employment could be achieved. This is especially the case for women, whose employment rate lags behind that of men by between 6.5 percentage points in Denmark and more than 20 percentage points in Italy and Japan (Table 3). Women are more likely to work part-time and earn less per hour than men in all countries, again with marked variations between care regimes. In no country has gender equality of employment, not just in terms of overall rates but also quality and working conditions, been achieved.

Table 3 Main labour market indicators

	Empl. rate 15-64 (Q4 2014)		PT frequency (2014)		Unempl. Rate (Q4 2014)		Gender wage gap (2013) (FT employees)	Empl. rate of mothers 15-64 (youngest child 0-5) (2013)
	Men	Women	Men	Women	Men	Women		
Australia	77.1%	66.1%	14.0%	38.3%	6.3%	6.4%	18.0	51%
Denmark	76.1%	71.0%	14.6%	25.4%	6.6%	6.4%	7.8	77.7%
Germany	78.1%	69.7%	9.1%	37.5%	5.4%	4.6%	16.6	61.9%
Italy	64.8%	46.9%	8.6%	32.9%	12.1%	14.4%	11.1	52.2%
Japan	81.6%	64.2%	12.0%	37.2%	3.8%	3.4%	26.6	42.9%
UK	77.0%	67.6%	11.7%	38.1%	6%	5.5%	17.5	60.6%
US	73.9%	63.3%	8.0%	16.8%	5.9%	5.7%	17.9	58.6%

Notes: source is OECD employment database and family database. Maternal employment rate for Japan is for women aged 25-54 and for the year 2010.

Care employment

Table 4 below shows the number of full-time equivalent (FTE) employees in the two industries considered for this analysis and overall, the percentage of the total who are employed in each industry, as well as the proportions of employees in each industry who are women.

Table 4 Employment in care and construction

	No. FTE employees (000s)			% of total (FTE)		% women (HC)	
	All	Constr.	Care	Constr.	Care	Constr.	Care
Australia	8807.1	703.8	400.9	8.0%	4.6%	11%	79%
Denmark	1752.7	112.4	200.6	6.4%	11.4%	8%	81%
Germany	29747.4	1982.9	1380.9	6.7%	4.6%	13%	75%
Italy	15566.1	1135.6	337.7	7.3%	2.2%	6%	85%
Japan	46932.7	4775.0	2224.3	10.2%	4.7%	14%	77%
UK	21580.5	1284.4	1301.1	6.0%	6.0%	11%	80%
US	122269.0	5903.0	5116.0	4.8%	4.2%	13%	81%

Source: See Appendix 3

Table 5 shows the compensation per FTE employee for each industry (as a proportion of the average compensation per employee across all industries) and the ratio of average compensation in the two industries. It shows that in four countries (Australia, Germany, Denmark and Italy) employees in the care industry are only slightly less well paid than in the construction industry, and they are better paid in Japan. However they all get a lower compensation than the national average except in Australia. By contrast, in the UK and the US, employees in the care industry are paid about half of what construction workers are paid and far less than the national average.

Table 5 Compensation of employees per FTE (% of average compensation)

	Constr.	Care	Ratio care/cons.
Australia	108%	106%	97%
Denmark	90%	85%	94%
Germany	79%	70%	88%
Italy	76%	69%	90%
Japan	73%	81%	112%
UK	100%	44%	44%
US	70%	38%	54%

Source: see Appendix 3

Appendix 3 gives an overview of the occupational composition of the main care industries for some countries. Although care industries in most countries have a variety of occupations with different qualifications, data for the US and Japan show that care-related occupations account for a large majority of employment in these industries (above two-third, including nurses and healthcare professionals).

Table 6 shows the average earnings in selected care work occupations compared with that of registered nurses and primary education teachers. Data could only be found for four countries (see Appendix 4 for more detail). Care workers in all four countries are paid well below the national average, and earnings do not differ much between childcare and long-term care workers. Note that both sorts of care workers in Australia are paid much less than the national average unlike, as Table 4 above shows, other workers in the care industry. Note also that the difference in pay between care workers and qualified nurses and primary school teachers is particularly large in the US and relatively small in Denmark.

Table 6 Earnings in care occupations (% of average earnings in all occupations)

	Nurses	Teachers (primary)	Child-care workers	Long-term care workers
Australia (All)	103	108	45	57
Denmark (Full-time)	97	99	67	73
UK (All)	104	113	45	55
US (Full-time)	138	124	56	55

Source: See Appendix 4 (average weekly earnings of employees; for Denmark, monthly earnings)

Working conditions in the care industry, characterised by unpredictability of working hours (especially for long-term care occupations), tiring shifts, low pay and irregular work contribute to problems of recruitment and retention, putting pressure on the overall quality of care services despite workers' commitment to delivering high standards (OECD, 2011a; EC, 2014).

Simulating direct, indirect and induced employment effects of public investment

The analysis that follows assesses the total employment generating effects of investing in physical and social infrastructure, and the gender breakdown of these effects. Using input-output tables and other official statistics[8], we calculate[9] the direct, indirect and induced employment effects of an investment equal to 2% of GDP made to either the care or the construction sector[10], taking these two sectors as typical examples of where social and physical infrastructure investment is made, respectively. We also look at the gendered breakdown of each of these employment effects.

Calculating total employment effects that include indirect and induced effects can be done by using input-output tables provided by national statistical offices. These tables show how industries are linked in the supply chain of goods and services that eventually meet final household, government and export demand. Input-output tables show how much output of each other industry (and how much of its own output) each industry's production process uses as inputs. We can add information on how much labour is used in the production process of each industry, and express all information as input requirements per unit of each industry's output. (Note that the way this is used assumes that these requirements do not change with the scale of demand for an industry's output.)

How much direct employment can be created by investment in a given industry depends on how much labour its production process requires and on the costs of employing that labour (employee remuneration, employers' social security contributions and other costs). Indirect effects are calculated for each industry by using the I-O tables to calculate total input requirements down the supply chain (including imported components) for the production of one unit of output of that industry. Total (direct and indirect) employment (also known as Type I) effects are then the total of these inputs, each multiplied by employment per unit of output in its production process. We then obtain the indirect employment effect for each industry by subtracting its direct employment effect, as calculated above.

Calculating the induced employment effect follows a similar method, only that the input-output tables are augmented in a different way, this time with information about household expenditure patterns. Households are effectively treated as another industry, using inputs produced by all industries but producing no output, whose level of expenditure depends on total household income, which is in turn determined by the total level of employment. Any additional employment then generates increased household income and thus induced demand which itself travels through the supply chain generating direct and indirect employment effects. This gives for any additional investment total (direct, indirect and induced) employment (also known as Type II) effects, from which the induced effects can be isolated by subtracting the direct and indirect (Type I) effects, as calculated above.

Deriving employment effects by gender is achieved by applying the proportions of men and women in each industry found in the latest employment surveys. As at all steps in this analysis, this makes the assumption that current proportions do not change as a result of such investments.

A more detailed explanation of the method used for our analysis is outlined in Appendix 2. The reference year of the input-output tables is 2010 for the UK, Italy and Germany, 2011 for Denmark and Japan, 2012 for Australia and 2013 for the US.

8 For statistical sources: see Appendix 3
9 For methodology: see Appendix 2
10 The exact definition of these two sectors varies across countries: see Appendix 3

Direct Effects

Table 7 gives the direct employment effects by country, that is, the number of new jobs directly generated by an equivalent investment in the construction or the care industries. Since countries differ in the size of their working age population, the easiest way to compare effects is to give the numbers of newly employed people as a percentage of each country's working-age population (15-64 years), that is, the percentage points by which its employment rate would rise.

Table 7 Direct employment effects

	Construction			Care		
	Number of jobs generated	Rise in head-count employment rate (% points)	Number of FTE jobs generated	Number of jobs generated	Rise in employment rate (% points)	Number of FTE jobs generated
Australia	74,791	0.5	68,859	356,812	2.3	269,842
Denmark	29,380	0.8	22,989	75,228	2.1	47,359
Germany	504,181	0.9	476,299	1,402,416	2.6	1,125,163
Italy	230,904	0.6	224,297	562,869	1.4	508,276
Japan	1,143,819	1.4	1,052,666	1,612,291	2.0	1,313,488
UK	300,787	0.7	287,436	746,409	1.8	608,320
US	2,575,090	1.2	2,510,713	7,146,507	3.4	5,511,897

It can be easily seen from Table 7 that the direct employment effects of an investment in care are considerably larger than those of an equivalent investment in construction. There are a number of reasons why this is to be expected. First, care is a far more labour intensive industry than construction, which uses a number of inputs other than labour, whereas the majority of the costs of providing care consist of care workers' wages and relatively little equipment and raw materials are needed. Second, in some countries but not all, workers in the care industry (in particular those providing care directly) are paid less than many construction workers. This is only marginally true in most countries, except in the UK and the US where there is a large difference in wage levels and a given amount of money will employ considerably more care workers than construction workers. Finally, care workers are employed on average for shorter hours than construction workers, since many care workers are employed part-time or for variable hours (e.,g., on zero - hours contracts). Much remains to be done to improve the quality of jobs for care workers, particularly women.

The third column under each industry allows for this last difference by looking at the number of full-time equivalent jobs (FTEs) created under our simulation's assumption that the employment structure in each sector remains unchanged. Under this assumption, even in terms of FTE jobs directly generated, investment in care still clearly outperforms investment in construction.[11]

However, in practice such a massive investment in a sector is likely to have considerable effects on working conditions (and pay) within the sector, particularly a sector that is already experiencing recruitment and retention problems due to poor pay and conditions as discussed above. If this is the case then, while the total amount of employment generated in the care industry may be reduced, the jobs will be of higher quality.

An increase in investment in either sector may also lead to the substitution of capital for labour i.,e., the use of labour saving technology. Unlike the considerable scope for labour-saving technology in construction, its use is inherently limited in care, albeit there is some scope that increased investment may encourage for its use in monitoring and communication. In this case our results may again overestimate the number of jobs generated, but will do so more for the construction sector than for the care sector. Investment in care will continue to have a considerably higher direct employment effect so long as it remains more labour intensive than construction, and the wages of care workers do not overtake those of construction workers, even if employment conditions in the two sectors were to start converging.

There is some variation between countries in the size of these effects, with the direct employment effects of investment ranging from half of a percentage point in Australia to 1.4 percentage points in Japan. The range is even bigger for the care sector, ranging from less than 2 percentage points in Italy and the UK to more than 3 percentage points in the US.

11 Note that for the US calculations we used the number of jobs rather than the number of people employed, therefore marginally overestimating the employment rate effects. Also, FTE jobs couldn't be calculated for all industries by gender so that only direct effect overall is shown here and the remainder of the US analysis uses headcount figures only.

What counts as a direct employment effect partly depends on the internal contracting structure of an industry; where workers are indirectly employed through contracting out their employment will appear as an indirect effect. So some of variation in the size of direct employment effects could be a result of the internal structure of the industries varying across countries. Outsourcing within the industry will reduce direct employment effects but will increase indirect effects, as will become clear below when we discuss indirect employment effects.

Table 8 shows that the direct gender employment effects of investment in the two industries are quite different. Both industries are heavily gender segregated, particularly construction. As a result only 6-14% of the jobs directly generated in construction would go to women in our simulation. Note, however, that the simulation assumes that the male domination of the construction is not challenged in the course of increasing investment in it (see Appendix 2). Any government looking to reduce gender inequalities would presumably attempt to change that male domination in making such an investment. Without doing so successfully, the gender gap in employment for the economy as a whole would increase with an investment in construction. This can be seen from Table 8 where the investment in construction results in a direct rise in men's employment rate of between 0.9 and 2.4 percentage points, while for women a direct rise of between 0.1 and 0.4 percentage points is all that can be expected.

Table 8 Gendered direct employment effects

	Construction			Care		
	% of jobs generated taken by women	Rise in employment rate of women (% points)	Rise in employment rate of men (% points)	% of jobs generated taken by women	Rise in employment rate of women (% points)	Rise in employment rate of men (% points)
Australia	11%	0.1	0.9	79%	3.7	1.0
Denmark	8%	0.2	1.5	81%	3.4	0.7
Germany	13%	0.2	1.6	75%	3.9	1.3
Italy	6%	0.1	1.1	85%	2.4	0.4
Japan	14%	0.4	2.4	77%	3.1	0.9
UK	11%	0.2	1.3	80%	2.9	0.7
US	13%	0.3	2.1	81%	5.5	1.3

Care is almost as gender segregated but in the opposite direction. The direct effect of investing in care would therefore be to reduce the gender gap in employment for the economy as a whole. The investment in care would result in an increase in the employment rate of women of between 2.4 and 5.5 percentage points, while for men that rise of between 0.4 and 1.3 percentage points is considerably smaller in all countries (though still larger than that for women of investing in construction), reducing every country's gender gap in employment by at least 2 percentage points. That the direct effect of investment in care on women's employment rate is so much greater than that of investment in construction on men's employment rate simply reflects the former's greater direct employment effect discussed above. Challenging gender segregation in every industry is an important contribution to promoting gender equality, and getting more men into caring occupations has been seen as desirable in itself. However, as our results show, if that gender difference persisted, investment in care would remain a highly effective way of narrowing the overall gender gap in employment.

But there are good reasons to think that if an investment of this magnitude was made, the female domination of the care sector might be reduced. The better wages and working conditions that would be necessary to achieve such an investment in care would be likely to attract more men into the industry, particularly if policies were in place to encourage and facilitate their entry. In this case investment in care would have a beneficial effect on a wider range of gender inequalities: it would reduce occupational segregation by gender and the gender pay gap; it would also still make the gender employment gap smaller though perhaps to a somewhat lesser extent than the estimates of the gendered direct employment effects in Table 8 suggest.

Indirect effects

Investment in any industry will generate additional indirect employment effects as demand is increased for the products of its suppliers. Such demand and employment effects will ripple down the supply chain, generating indirect employment effects in many industries (including within the industry/ies in which the original investment was made). We do not here present the division between indirect effects that are within each industry itself, and those that are outside effects on other industries, but as noted above it should be borne in mind that the distinction between direct and indirect within industry employment effects depends on the internal contracting structure of an industry. All other things being equal, industries that engage in more internal subcontracting will have higher indirect effects and lower direct effects than industries that tend to employ labour directly.

In most countries, the indirect employment effects of investment in construction are larger than those in care. This is to be expected, since construction uses more inputs provided by other industries than a labour intensive industry such as care. Two outliers are worth discussing at this point: the care effect for the UK and the construction effect for Australia.

Table 9 Indirect employment effects through the supply chain

	Construction			Care		
	Number of jobs generated	Rise in headcount employment rate (% points)	Number of FTE jobs generated	Number of jobs generated	Rise in employment rate (% points)	Number of FTE jobs generated
Australia	180,087	1.2	161,816	40,663	0.3	34,525
Denmark	18,135	0.5	13,873	10,744	0.3	7,511
Germany	263,281	0.5	236,188	185,001	0.3	159,437
Italy	265,789	0.7	250,276	188,437	0.5	171,133
Japan	598,642	0.7	524,557	378,888	0.5	142,668
UK	231,389	0.6	213,572	509,528	1.2	420,673
US	1,426,866	0.7	n/a	1,326,773	0.6	n/a

Our calculations identified that the UK has a much larger indirect effect, nearly all of which (0.8 percentage points) is due to indirect employment effects within the care sector. The UK's care industry's indirect employment effect on other industries at 0.4 percentage points is similar to that of other countries. This suggests that the care sector in the UK outsources a larger proportion of its inputs within itself than the care sector in other countries (and indeed than the construction sector in many countries). One possible explanation for this is the recent intense privatisation of care in the UK – such restructuring may lead to greater outsourcing and contracting through agencies. This is consistent with a direct employment effect in the UK that is lower than most, so that the sum of total within-industry effects (both direct and indirect) is in the middle of its range over the countries studied. Total employment effects will be analysed below.

The other outlier is Australia, whose residential construction sector generates particularly large indirect employment effects (and the lowest direct employment effect). This seems to reflect recent changes in the Australian construction industry that saw increases in outsourcing to specialised trades in other industries and sub-contracting between firms within the construction sector (Toner, 2006).

Table 10 shows the gender breakdown of these indirect employment effects.

It is striking that the indirect employment generated by the construction industry is still male-dominated, though less so than its direct employment. For the care industry that is not the case. Indeed the balance of indirect employment generated favours men somewhat, except in the UK, whose large indirect effect is primarily within the care sector itself, which as we know is female-dominated.

As a result the indirect employment effects of investment in construction raise men's employment rate more than women's, increasing the gender employment gap. In most countries the rise in the gender employment gap is by between 0.3 and 0.7 percentage points, but in Australia it is by a whole percentage point. Successful efforts to tackle the male domination of the construction industry's suppliers, as well as that of industry itself, would be necessary to mitigate these effects.

Table 10 Gendered indirect employment effects

	Construction			Care		
	% of jobs generated taken by women	Rise in employment rate of women (% points)	Rise in employment rate of men (% points)	% of jobs generated taken by women	Rise in employment rate of women (% points)	Rise in employment rate of men (% points)
Australia	30%	0.7	1.7	42%	0.3	0.3
Denmark	31%	0.3	0.7	42%	0.3	0.3
Germany	33%	0.3	0.6	50%	0.3	0.3
Italy	24%	0.3	1.0	53%	0.5	0.4
Japan	34%	0.5	1.0	42%	0.5	0.5
UK	23%	0.2	0.9	67%	1.2	0.8
US	37%	0.5	0.9	43%	0.6	0.7

Induced effects

Besides indirect effects there are also induced employment effects as a result of the additional household income generated by the additional employment. Some of this additional household income will be spent and become a further source of increased demand within the economy, generating jobs in the sectors in which households spend their income.

Table 11 shows these induced effects. Note that these effects are more controversial and some national statistical offices do not calculate them. We have included them because when calculated they often turn out to be substantial, but they are given here with the proviso that their magnitude must be taken as somewhat approximate. One reason for this caution is that we have had to treat all household income as being spent in the same way, as is the usual practice by those statistical offices that do calculate induced effects[12]. Ideally, for the purpose of comparing the effects of investment in two different sectors, we would have liked to be able to consider the spending propensities of different types of households and the likely distribution of construction and care workers (and those indirectly employed) among such households. To do so would have required analysing micro-level household expenditure data, which was beyond the scope of this project, although we can comment on the likely direction in which our estimates of induced employment effects might move if such micro-level analysis were to be carried out.

Table 11 Induced employment effects through household spending

	Construction			Care		
	Number of jobs generated	Rise in headcount employment rate (% points)	Number of FTE jobs generated	Number of jobs generated	Rise in employment rate (% points)	Number of FTE jobs generated
Australia	132,574	0.9	109,626	216,122	1.4	178,713
Denmark	20,896	0.6	13,745	31,153	0.9	20,491
Germany	272,570	0.5	232,887	432,368	0.8	369,420
Italy	123,880	0.3	112,332	194,350	0.5	176,233
Japan	1,350,489	1.7	1,140,271	1,478,403	1.8	1,242,336
UK	212,468	0.5	181,581	292,151	0.7	249,680
US	3,444,418	1.6	n/a	4,438,219	2.1	n/a

12 We have broadly followed the methodology of National Statistics Scotland, adapting it where necessary to the data limitations of particular countries. For further details, see Appendix 2: Methodology

The induced effects of investment in the care sector are larger than those of the construction sector simply because the former raises total household income more. This is because the larger overall employment effects must outweigh the lower pay of the care sector. Another way to interpret the relative rise in total household income is that it shows the care industry to be using fewer imports directly and indirectly than the construction industry, so that a larger proportion of the employment creation of investment in care stays within the domestic economy.

Since lower income households are likely to have a greater propensity to spend any additional income, our methodology, by treating all household income as spent in the same way, will in practice underestimate the employment-inducing effects of investment that results in an increase in earnings going to lower income households. As Table 5 shows, only In Australia are care and construction workers paid above average wages, and in the UK construction workers receive average wages. In all other countries workers in both sectors receive below average wages, and in the US and the UK care workers are on average paid particularly poorly and thus are more likely to live in lower income households, all else equal. We can therefore assume that the propensity to consume and therefore induced employed effects might in general be somewhat greater than those given in Table 11, and particularly for employment generated by investment in the care industry in the US and the UK.

Table 12 shows clearly that the induced effects do not have a specifically gendered character, simply reflecting the roughly equal gender composition breakdown of employment in the sectors producing the goods and services that households purchase.

It also reveals how the only difference in the induced effects of the investment between the two industries that our methodology can pick up is one of scale. Induced effects, as calculated here, are simply proportional to the total additional wage bill paid through the direct and indirect employment effects. However, in reality there is good reason to think that the induced effects might not be proportional, once we take account of most care workers being women and thus in practice more likely than construction workers to need to spend money to replace their own unpaid labour if they take a job or increase their hours of employment. Particularly where the unpaid labour is replaced by services, as it must be to meet domestic care responsibilities, that money will be spent in ways that generate local employment. This is more likely to be the case in countries where care is not well subsidised and remain expensive for users, as in the UK and the US (at least for childcare as the country profiles show).

For this reason it is likely that the induced effects of investment in care are somewhat underestimated and in particular underestimated relative to those of investment in construction.

Table 12 Gendered induced employment effects

	Construction			Care		
	% of jobs generated taken by women	Rise in employment rate of women (% points)	Rise in employment rate of men (% points)	% of jobs generated taken by women	Rise in employment rate of women (% points)	Rise in employment rate of men (% points)
Australia	49%	0.9	0.9	49%	1.4	1.5
Denmark	47%	0.5	0.6	47%	0.8	0.9
Germany	51%	0.5	0.5	51%	0.8	0.8
Italy	44%	0.3	0.3	44%	0.5	0.5
Japan	43%	1.4	1.9	44%	1.8	2.0
UK	46%	0.5	0.6	46%	0.7	0.8
US	52%	1.7	1.6	52%	2.1	2.0

Total effects

It is the total employment effects that matter in understanding how investment can be used to generate employment. Table 13 gives these by summing the above direct, indirect and induced employment effects.

We can see that in all countries the employment inducing effect of investment in care is higher than that of an equivalent investment in construction, at least 50% higher in all countries except Japan, where construction has unusually large employment generating effects (both direct and indirect). In Italy the effects for both sectors are smaller (more so for care) than for other countries with both direct and induced effects amongst the smallest. This is in part due to a larger proportion of full-time employment than in other countries. In full-time equivalents, Denmark has a lower overall rise in employment rate than Italy for example (2.1 versus 2.2). Another reason might be that because social care in Italy is so underdeveloped, especially as formal at-home care is virtually inexistent, the more capital intensive residential care might feature more prominently in relative terms in official statistics and thus the employment effect is lower in Italy than say, Germany, where relative wages are of the same magnitude (Table 5). It is unlikely that the input-output tables capture the contribution of the grey economy, which is widely developed in Italy's social care system[13].

Table 13 Total employment effects

	Construction			Care		
	Number of jobs generated	Rise in head-count employment rate (% points)	Number of FTE jobs generated	Number of jobs generated	Rise in employment rate (% points)	Number of FTE jobs generated
Australia	387,452	2.5	340,300	613,597	4.0	483,080
Denmark	68,412	1.9	50,607	117,124	3.2	75,361
Germany	1,040,031	1.9	945,373	2,019,786	3.7	1,654,019
Italy	620,573	1.6	586,905	945,655	2.4	855,642
Japan	3,092,950	3.8	2,717,494	3,469,582	4.3	2,877,691
UK	744,644	1.8	682,588	1,548,087	3.7	1,278,673
US	7,446,375	3.5	n/a	12,911,500	6.1	n/a

13 See more details and sources in the country profile in Appendix 1.

Further as Table 14 shows, the employment effects of investing in care would also reduce the gender employment gap by having a stronger effect on women's employment rate than on men's. Table 15 shows what the employment gap is in each country and by how much it would be reduced or increased by each type of investment.

Table 14 Gendered total employment effects

	Construction			Care		
	% of jobs generated taken by women	rise in employment rate of women (% points)	rise in employment rate of men (% points)	% of jobs generated taken by women	rise in employment rate of women (% points)	rise in employment rate of men (% points)
Australia	33%	1.7	3.4	66%	5.3	2.8
Denmark	27%	1.0	2.7	69%	4.5	2.0
Germany	28%	1.1	2.8	68%	5.1	2.4
Italy	21%	0.7	2.5	70%	3.3	1.4
Japan	30%	2.3	5.3	59%	5.1	3.4
UK	24%	0.9	2.7	69%	5.1	2.3
US	35%	2.5	4.6	67%	8.2	4.0

Table 15 Gender employment gap and effects on it of investment of 2% of GDP in Construction or Care Industries

		Construction		Care	
	Existing gender employment gap	Percentage point change in gender employment gap	As % of existing gender employment gap	Percentage point change in gender employment gap	As % of existing gender employment gap
Australia	12.2	1.8	15%	-2.6	-21%
Denmark	6.5	1.7	26%	-2.5	-38%
Germany	9.4	1.7	18%	-2.7	-29%
Italy	21.1	1.8	9%	-1.9	-9%
Japan	23.1	2.9	13%	-1.6	-7%
UK	9.9	1.8	18%	-2.8	-28%
US	8.7	2.1	24%	-4.2	-48%

While investment in construction increases the gender employment gap, investment in care decreases it substantially while increasing both women's and men's employment rates. The relative reduction is strongest in the US and Denmark where existing employment gaps are the lowest whereas the gaps are least reduced in Italy and Japan where they are the largest of the seven countries studied.

This analysis does not show that investment in construction is not worthwhile. Rather that since at least as large employment effects can also be generated by investment in care, with particularly beneficial gender equality effects, the mix of investment has to depend on what benefit the results of each type of investment would in itself generate for society. It can no longer be made simply on the grounds that investing in physical infrastructure is the best way to stimulate employment.

Reducing the employment gap is not the only gender inequality that could be improved through investment in care. Wages and working conditions in the care industry would have to improve considerably if such an investment were to be successful, given existing retention and recruitment problems in the industry. Such investment would therefore have to entail training and professionalization, which would be of benefit not only to care workers but to the people that they care for. Achieving high quality care is a gender issue in its own right, since women predominate among one significant section of care recipients, the elderly.

Once basic needs are met, investment in care may result in more jobs being created to extend coverage in terms of hours of care, raise staff/client ratios and improve training. Better training would also result in wages being increased, which should also improve care standards, particularly for those with particular types of care needs. Even in Denmark, where this exercise may seem irrelevant given that most needs for social and childcare are covered (at least in terms of the numbers of children and adults in need of care who are being formally looked after), there is still scope for improvement. So we might expect that any additional employment created by investment in care in Denmark would improve quality rather than coverage, with increased staff ratios and better working conditions. In particular Denmark's social care system has high turnover owing to difficult working conditions, as in other countries, despite its well-developed system that seems to provide for all critical needs (Schultz, 2014).

The benefits of care provision in itself are considered elsewhere in this report. That in itself makes the strongest case for investing in care. But the employment effects are considerable too, and their substantial effects on gender inequalities reinforce that argument.

Summary of employment and growth effects

Figures 1 and 2 below summarise the employment effects that have been discussed in detail above.

Figure 1 Contribution of men's and women's employment to the rise in employment rates by industry and country

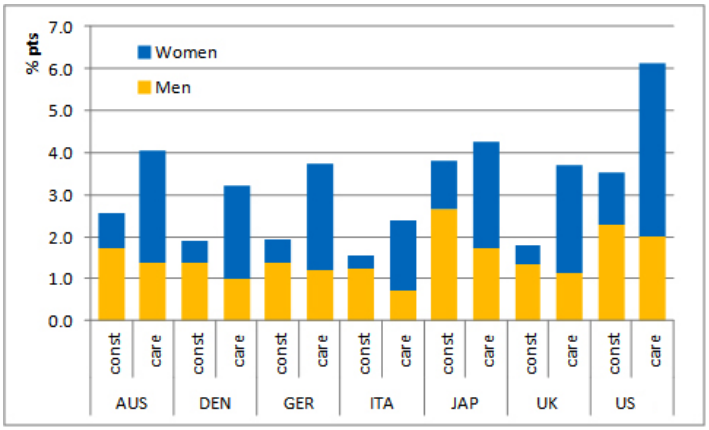
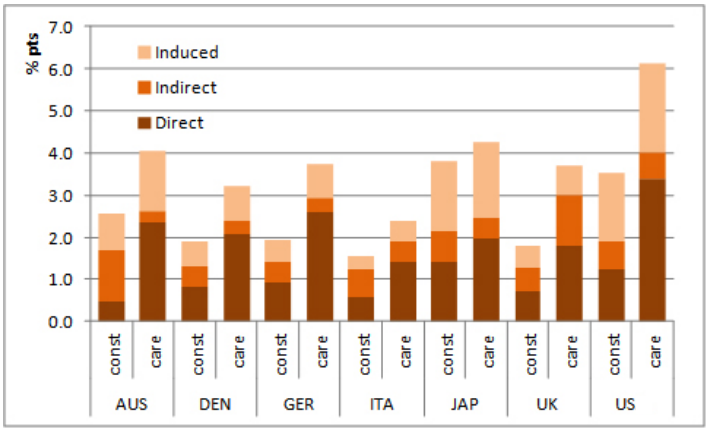
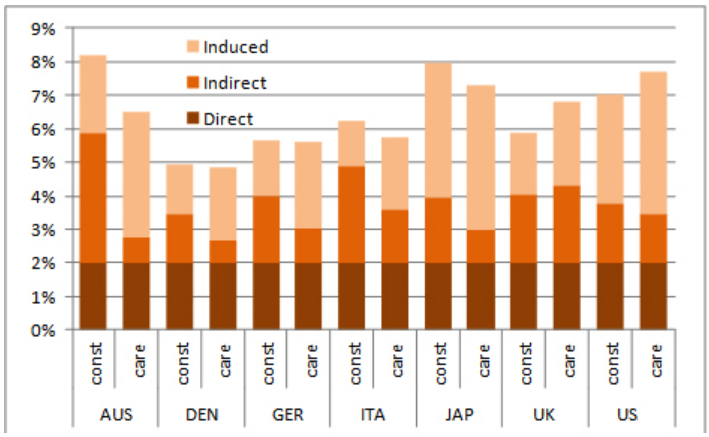


Figure 2 Contribution of direct, indirect and induced effects to the rise in employment rates by industry and country



Effects of the investment in care or construction can also be analysed with respect to output and GDP growth. Figure 3 shows the effect on output (GDP) of the same investment equal to 2% of GDP in each of those two industries. In this case the direct effect is just that initial 2% from the initial injection in the economy. Indirect and induced output effects vary between countries: in Australia and Japan, total effects are larger for investment in the construction than in the care industry, but it is the other way around in the UK and the US, while no major difference overall is observed in Italy, Germany and Denmark. In Australia, Japan and the US, GDP is boosted by about 7%, i.e., 5 percentage points above the initial injection, reflecting an output multiplier, that is the ratio of total to direct effects, of around 3.5-4 for both industries. Effects are smallest in Denmark.

Figure 3 Contribution of direct, indirect and induced effects to GDP growth



It is the labour intensity of the care industry that causes larger employment effects of investment in it not to result in larger output effects than for construction industry (in Australia, Italy and Japan at least). This would change if care was more valued and its workers better paid, but then the employment effects would be smaller too. The case for care as a more effective form of stimulus than construction does not hold consistently across countries if we are looking at effects in terms of GDP. Either form of investment provides a stimulus that generates good returns in terms of both employment and output. In choosing the mix of investment, probably the most important consideration are the benefits of the investment itself, though it remains that case that investment in care always does more for gender equality.

Additional simulations for long-term projections

Using a different simulation tool, the Cambridge Alphametrics Model (CAM), we have also projected what would be the result on employment in the medium-to-long-term from different investment scenarios, similar in focus to those explored above, but with slightly different assumptions and parameters. CAM is a demand-driven global macroeconomic model that can be used for medium-to-long-term projections of historical trends of the global economy, major blocs of countries and major countries (Cripps and Kurasee, 2010).

In this analysis, the model is used to project employment and GDP effects of different policy scenarios into the year 2030. Three scenarios are considered: (1) a business as usual scenario in which current economic policies continue into the foreseeable future, including fiscal consolidation and modest investment plans within budget constraints; (2) an overall investment boost with increases in private and public investment and spending over and above the business-as-usual scenario, but not targeted at any particular industry; (3) a gendered investment boost in which scenario (2) is applied but investment is marshalled in such a way that it prioritises increasing female employment, implicitly by targeting a larger increase in female employment rates than in overall employment rates.

The model is applied to different sets of countries or blocs of countries that reflect the choice of OECD countries in our main analysis. Not all countries are identifiable individually in CAM. Italy is included in the bloc "Eurozone periphery" alongside Spain, Greece and Portugal; Australia is grouped with Canada and New Zealand and Japan features with South Korea in a block of high income East Asian countries. Denmark cannot be easily analysed, as Scandinavian countries are grouped together with countries in Eastern Europe, such as Poland and Czech Republic, which makes results for them difficult to interpret. Therefore we have dropped Denmark and its bloc from this analysis.

As the model runs on a different set of economic relations[14], the results are not directly comparable with the input-output analysis above. However, qualitative comparisons can be made, especially between the overall investment scenario and the gendered investment scenario.

The business - as - usual benchmark scenario includes current plans that differ across the countries/blocs studied. For example, the business as usual scenario for the EU countries factors in the EUR 315bn Juncker Investment Plan, so it is not strictly speaking a pure austerity plan, although it assumes fiscal consolidation of current government spending in the short term. Table 16 shows the bloc-specific assumptions of the boost scenarios (overall and gendered) for private investment and government spending, over and above those made for the business as usual benchmark. As the model sets a medium-term target, these figures are not to be understood as exogenous shocks in demand for the economy (as in the analysis above) but as the results of both an initial investment boost carried through year on year and the knock-on effects on growth and thus government spending and private investment further down the line. Hence in 2030, the total share of private investment and government spending as a percentage of GDP is higher than 2% compared to the business as usual scenario, reflecting cumulative effects over the years.[15]

14 Unlike general equilibrium models, as an open disequilibrium system CAM does not assume any single equilibrium path to which the world economy tends to return in the medium or long-term (unlike input-output models implicitly); this means that it can simulate a wide variety of outcomes with different growth rates and end points (Cripps, 2014). In CAM the world economy is modelled as an integrated system in which social and economic variables of different countries and blocs differ. Time-series data taken from the United Nations Statistics Division and the IMF are incorporated in the model and regularly updated (currently 1970-2015).

15 CAM does not work with initial shocks to be put in the model but rather by setting targets to reach (for investment and government spending for example) so there is no distinction between exogenous spending (our 2% GDP carried through year on year) and endogenous spending.

Table 16 Private investment and government spending in 2030 – boost scenarios relative to business as usual

	Target 2030 (% GDP)	
	Private investment	Government spending
Germany	2.92	1.00
UK	2.94	2.00
Eurozone Periphery	2.93	2.48
US	3.68	0.95
Australia / Can.	0.67	0.54
East Asia High Income	0.11	-0.62

Source: calculations by Giovanni Cozzi using CAM (2015)

Table 17 shows the results of the different boost scenarios on employment rates. These figures are in line with the input-output analysis above, as the gendered investment scenario seems to produce better results in terms of total employment rates and reduction of gender employment gaps than the 'overall' investment scenario. Note however that increases in employment observed in 2030 are much smaller than those in the input-output analysis because the CAM model has a supply side that might constraint the effective increased demand for labour. By contrast, the input-output model only provides labour demand estimates, and thus implicitly assumes that any job created will be taken by someone available and with the right set of skills (see Appendix 2).

Albeit with variation between countries that reflects their labour market structure and economic policy priorities, the gendered investment boost scenario shows a total employment effect that is greater than the overall boost scenario (up to twice as large in the Eurozone periphery). Interestingly, not only women's employment rates are raised substantially more in the gendered boost scenario than in the overall boost scenario, but also men's employment rates increase in all blocs to the same extent than in the overall boost scenario.

Photo: ILO

Table 17 Percentage point increase in employment rates in two investment scenarios (2030)

	Total		Women		Men	
	Overall	Gendered	Overall	Gendered	Overall	Gendered
Germany	0.47	0.73	0.21	0.74	0.73	0.72
UK	0.65	0.91	0.31	0.82	1.01	1.02
Eurozone Periphery	0.95	1.94	0.84	2.93	1.04	0.94
US	0.37	0.69	-0.11	0.53	0.86	0.86
Australia / Can.	0.39	0.76	-0.02	0.73	0.81	0.81
East Asia High Income	0.31	0.32	0.11	0.13	0.5	0.51

Source: calculations by Giovanni Cozzi using CAM (2015)

The CAM model also provides estimates of economic growth and public debt over the long term. Table 18 compares the figures for 2015 and 2030 for the business as usual scenario with the investment scenarios. The first two columns show the cumulative effects of GDP in 2030 for the two investment scenarios over and above the effect of the business as usual scenario. For example, the gendered investment scenario in Germany leads to a GDP figure that is 32% higher at the end of the 2015-2030 period than that obtained by a business as usual scenario. Both investment boost scenarios yield similar positive results in all blocs as expected with variations between countries ranging from a 26% boost in the UK to a 56% boost in the US. Differences in cumulative growth between the boost scenarios are only noticeable in the Eurozone periphery where the gendered scenario increases GDP by 5 percentage points more than the overall boost scenario. Government Debt is reduced more as a percentage of GDP by 2030 in the case of the boost scenario (similar figures for both scenarios) than in the case of the business - as - usual scenario. In other words, the investments that characterise the two boost scenarios more than pay for themselves, even using the narrow criterion of their effect on the public finances.

Table 18 Cumulative effects on GDP and government debt (2015-2030)

	GDP growth (% cumul.)		Debt (% GDP)		
	Overall	Gendered	2015	Usual 2030	Boost 2030
Germany	31.76	32.37	71.6	66.6	57.7
UK	26.13	26.19	78.6	75.9	59.0
Eurozone Periphery	27.76	32.68	120.1	105.3	83.4
US	56.01	55.94	93.4	93.2	70.1
Australia / Can.	34.72	34.78	66.9	73.2	56.3
East Asia High Income	29.20	29.50	46.3	43.6	35.4

Source: calculations by Giovanni Cozzi using CAM (2015)

Results from this independent set of simulations confirm the hypotheses outlined above that investing in the economy produces positive results when it comes to economic growth and government debt even if it initially requires additional government spending, ruling out any claim that austerity policies of cutting government spending offer both employment and GDP growth as well as fiscal discipline. Moreover, gendered investment strategies increase total employment more and men's employment in equal measure than non-gendered strategies but at the same time are more effective in reducing gender employment gaps.

Conclusion

This report has shown that policies that are effective in promoting economic growth and employment are likely to be those that include public investment in infrastructure rather than austerity and public spending cuts. However, it is necessary to see infrastructure from a broader point of view than usually portrayed in accounts of Keynesian intervention plans. Social infrastructure, the activities that provide health care, education, childcare and adult long-term care are vital to maintaining and growing the productive capacity of an economy, as well as being essential ways of developing people's quality of life.

In the short-term, our simulations have shown that investing the equivalent of 2% of GDP either in the care industry or in the construction industry generates substantial positive employment and output effects. However investing in care produces larger employment effects in all countries. Not only are more jobs created through direct, indirect and induced effects than by investment in the construction industry, but because more of the jobs that are generated are likely to be taken up by women, such investment helps reduce gender inequalities in employment. We also argue that working conditions would be improved along the way as more jobs become available in care services.

We observe differences in magnitude between countries that are due in part to differences in the structure of labour markets (level of compensation of care workers) and the organisation of the industry (outsourcing and labour intensity depending on the mix between residential or centre-based care and family or at-home care). Even in countries where average compensation of employees in the care industry is close to that of the construction industry (i.e., all countries but the UK and the US), employment effects are larger owing to fewer imports and greater labour intensity in care services.

Although it is likely that in the long-run some of the initial investment will be recouped through improvements in productivity, the permanent nature of the services in care (paying carers' wages every year) will likely require a different funding model than one-off projects such as building roads or houses. However, some of the large physical infrastructure projects tend to have long spans before the product is finished and may require permanent streams of funding too. Taxation should therefore be a key instrument in the design and the implementation of such policies altogether. For care services as well as environmentally-friendly infrastructure, this could take the form of a social contract between generations using general taxation.

Additional analysis using the CAM model has confirmed that economic policies that aim at increasing private investment and public spending are beneficial in the long term, for employment, economic growth and government debt reduction. Moreover investment policies that target female employment in particular, such as investment in care industries, have slightly better results on overall employment, and on reducing gender gaps than more gender-neutral strategies while increasing male employment in equal measure.

Expanding on this research, it would be useful to refine the assumptions for calculating induced effects, as more detailed social accounting matrices can do, or using a full-blown microsimulation model to estimate consumption and employment behaviours in reaction of the initial investment. Also, rather than comparing similar sizes of investment between countries (in our case, 2% of GDP), further investigation could include a more accurate picture of the unmet care needs in different countries for which funding and investment is required, as some countries may be much further away from providing adequately for their population's care needs than other (see Italy versus Denmark for example).

In the end, the argument must be that investing in a caring economy reaches beyond economic and employment benefits, as does investing in sustainable and environmentally-friendly physical infrastructure. Providing high quality care that people need is a sign of a civilised and healthy society and that in itself is a sufficient condition to advocate for public investment in high quality care services. Moreover, both investing in care services and in construction projects satisfying renewable and environmentally-friendly criteria are vital steps in enabling societies to become sustainable. The two types of investment should be considered together. This report suggests that the urgent need to solve the care crisis and address gender inequalities makes investment in the social infrastructure a higher priority than is currently the case. Be that as it may, the results of this analysis and other studies show that, as an effective alternative to austerity, investment in physical infrastructure cannot be presented as the only form of investment that would stimulate employment and economic activity.

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Appendix 1 Country profiles

Australia

System of care provision (care regime)

Australia, an Antipodean "liberal" welfare regime (Esping-Andersen, 1990; Ferragina and Seeleib-Kaiser, 2011), has scant provision of public services, and all benefits are means-tested. However, its social protection system is more comprehensive and inclusive than that of other liberal welfare states (Castles, 1998; Arts and Gelissen, 2002). Because thresholds are relatively high a considerable part of the population receives some means-tested benefits. Income guarantees, employment security and wage controls play a more important role in the state's redistributive efforts than social services.

Long-term care

The federal government is responsible for designing and financing long-term care (LTC) provision for the population over 65 years old (usually referred to as 'aged care' in Australia), and states and territories for planning and monitoring services for those with care needs who are under 65, under the terms of the National Disability Agreement (OECD 2011a). It is estimated that 2.3% of the total population use LTC services (1.6 at home and 0.7 in institutions (OECD 2008)). Nearly all publicly funded provision is delivered by the private sector, often by non-profit organisations. All programmes are tax-funded, but some require co-payments.

Several schemes have been designed to meet the requirements of those with care needs. First, public funding for residential care is means-tested and co-payments by recipients account for approximately 30% of funding. Eligibility is assessed by the Aged Care Assessment Teams (ACATs) and the average subsidy per person in 2009 amounted to AUD 20,000 for those with low care needs and AUD 52,000 for those with high care needs (OECD 2011a). In comparison – the mean disposable household income in 2009-2010 was AUD 44,096 (USD 30,836) annually (ABS, 2013).

Second, non-residential care (Home and Community Care (HACC)) is a programme funded (just under 60%) by the federal government and (just under 40%) by state, territorial or local governments, with co-payments providing up to 5% of funding. This programme includes community nursing, community-based respite care, domestic assistance and personal care, as well as transport and meals. Additional alternative packages are available under HACC: Community Aged Care Packages (CACPs), also available to those approved by ACATs, and subject to means testing are an alternative to low - level residential care and consist of home-care services for elderly people (approximately 5-6 hours of direct assistance weekly). The average subsidy in 2009 was AUD 12,000 per person and 10% was financed from co-payments. The alternative to for those with high care needs is Extended Aged Care at Home (EACH) funded federally. The assistance offered goes beyond CACPs and the subsidy per person amounted to AUD 39,000 in 2009. Finally, special help is offered to people with dementia (Extended Aged Care at Home Dementia (EACHD)). It is similar to EACH but provides specialised services. The direct assistance of 15-20 hours per week attracts a higher subsidy per person annually.

Irrespective of the package granted, the federal government sets the maximum daily payment the service providers can be remunerated. If the individual's expenses exceed the annual threshold the beneficiary qualifies for a 20% tax offset (OECD, 2011a). Overall, government spending on all programmes aimed at providing long-term care services for elderly people amounted to 0.85% of GDP in 2011-12 of which 70% was for residential care (SGRGSP, 2013).

Any care provider needs to meet quality standards supervised and monitored by the Aged Care Standards and Accreditation Agency, which has a formal complaints investigation scheme. In 2007 almost 2% of Australia's labour force worked in the residential and non-residential care sectors, but the majority of LTC services (over 83% in 2003) are still provided informally by family, partners or other personal carers, some of whom receive cash allowances from the government. Faced with rising demand for LTC workers – up to 140% by 2050 (OECD, 2011a) – Australia has introduced immigration programmes for long-term care workers and measures related to skill upgrading, including public funding streams for care workers interested in qualifying for the nursing profession.

Childcare and early education

The Australian pro-market orientation is also visible in its funding of for-profit childcare. Eligible parents of preschool children can choose between day care centres or family day care to receive a means-tested childcare benefit (CCB). There is also a non means-tested childcare rebate that reduces by 50% the out of pocket expenses (after any CCB) up to a ceiling. Budget 2015 recently reformed the funding system by offering, from 2017, a single means-tested payment called childcare subsidy (paid to the provider) of up to 85% of childcare costs for low income families and 50% for middle income families (Families Package 2015). Eligible parents must be in work, looking for employment, training or volunteering for a

specified minimum number of hours per week. Additional assistance is provided to those with children with greater needs and/or in disadvantaged communities. As a result of generous means-testing (and the non-means tested element) the subsidy provided is larger than 50% of the fee, for 95% of children in care. In 2013, about a third of children aged 0-2 were enrolled in formal childcare, compared to two thirds of those aged 3 to 5 (OECD Family database, 2014). In Australia primary education starts at 5 years old.

Funding is a shared responsibility between federal, state and local governments with the federal government contributing 81% of the total. ECEC fee subsidies (including for after-school care) is estimated to amount to about AUD 9bn in 2011. This figure, which includes the cost of primary education funding for 5 - year - olds, represents 0.59% of GDP (OECD SOCX, 2015).

Denmark

System of care provision (care regime)

Denmark, as a Nordic "social-democratic" welfare state (Esping-Andersen, 1999), offers extensive social rights and marginalises the role of private formal welfare provision. The universal rights approach emphasises equality of all citizens, thus provision of a high level of basic security is a central concern. The combined use of in-kind and cash benefits together offer employment and care services allowing both women and men to participate fully in the labour market (Myles, 1998: 344).

Long-term care

Long-term care (LTC) services are provided and financed by local councils (under the Consolidation Act on Social Services (CASS)). Access is equal and free of charge for all legal residents of Denmark irrespective of age, wealth or income. Services are financed through local taxes and block grants from the state (Schulz 2010). Available services comprise conventional nursing homes (rent is paid according to a person's income), subsidised housing for older people with care facilities and care workers, and care at the recipient's home (temporary care has to be paid by the recipient, permanent care is free of charge). The government has explicitly given priority to community care and help for elderly people in their homes over residential care, through offering personal care services and domestic help – shopping, cleaning etc. The aim of providing formal help to all people with critical needs is achieved as it is estimated that almost everyone who has severe impairment receives some formal care, with the remainder either able to cope without help or receiving help from relatives or friends. Among those aged 65+, 94% of the 125,000 individuals who were identified as having severe impairments received formal help in 2010, according to the SHARE survey (Schulz, 2014).

In 2003, following the 'free choice reform', private care providers entered the sector. Thus, individuals and private companies that meet quality standards and municipality price requirements can receive from users a service certificate which allows the municipality to employ them. However, their numbers are still limited and they overwhelmingly provide practical help with instrumental daily activities such as housework and shopping (Schulz, 2014). Local authorities can also grant cash benefits to those with care needs (OECD, 2011a). Together the in-kind and the cash benefits for LTC in Denmark amounted to 4.5% of GDP in 2010 (2.5% on services and 2% on cash transfers), the highest in the OECD (Lipszyc et al., 2012: 11).

Although, as in every other country, the majority of care is still provided unpaid by family, because LTC services are to a large extent institutionalised, publicly funded, available and guaranteed, Denmark has one of the lowest rates of informal caregiving in Europe. Informal carers are nevertheless well supported and can claim a care allowance as compensation for lost wages (OECD, 2011a).

Childcare and early education

This "social-democratic" universalist approach also applies to child care. Denmark has one of the highest proportions of children in state-subsidised child care institutions in Europe. As Wolfe (1989) has argued, the family "goes public" in Denmark and most Danish children spend part of their lives in day care. This universal child care provision was introduced when an alliance of the women's movement with other powerful organisations (e.g., social pedagogues) advocating the ideal of professional care managed to break through a previously prevailing rhetoric of opposition between children's and women's interests (Kremer, 2006).

The thriving development of centre-based child care in Denmark in the 1960s also helped meet the demand for greater employment in a way that corresponded with the emancipatory views of Danish women aspiring to financial independence from their male partners. Instead of relying on immigration, as most Western European countries did to increase their labour force, Denmark employed women already in the country to fill the gaps (Borchorst and Siim, 1987).

Today Denmark has the best-trained child care workers in Europe (Siim, 2000; Borchorst, 2002). It argues that professional care for younger children gives them the 'social pedagogical' attention not available at home and 'focuses not only on individual development but also on becoming a social human being' (Kremer 2006: 266). Child care provision is the responsibility of municipalities, and all children from the age of 26 weeks up until 6 years are entitled to a full-time place in a day care. 91% of children aged 1-2 years (74% of 0-2) and 97% of children aged 3-5 were enrolled in day care in Denmark in 2011 (EC, 2014). Parental payments are earnings-related but capped at 25% of operating costs (EU, 2015). In total Danish public expenditure on childcare and early education services

amounts to almost 1.5% of GDP and is the highest of all the OECD countries (OECD SOCX, 2015).

Germany

System of care provision (care regime)9

Germany is described as having a 'continental-corporatist' welfare regime (Esping-Andersen, 1990; Ferragina and Seeleib-Kaiser, 2011) which means that it diversifies sources of care, relying on different actors and assigning a greater role to the market and occupational group-based social insurance (Degavre and Nyssens, 2012: 23).

Long-term care

In 1995 Germany pioneered a new system of funding long-term care by introducing a system of compulsory long-term care insurance (LTCI) for those below a certain household income level, expanding the universal long-term care (LTC) risk coverage and developing benefit provisions beyond just means-tested public assistance (OECD, 2011a). After assessment of needs by the Medical Review Board (MDK), insured beneficiaries can choose between cash or in-kind benefits or a combination of both. Despite the fact that the value of the cash payments is about half that of in-kind services, the majority of users opt to receive only cash, or a combination of services and money, to compensate family members for their informal care. In-kind care services are almost entirely (97%) provided by private companies and non-governmental organisations, contracted by Long-Term Care Insurance Funds. Likewise, semi-residential care home providers (day care centres and respite care facilities) are private or run by non-profit organisations (over half of all homes) (OECD, 2011a).

Taken together the in-kind and the cash benefits for LTC in Germany amounted to 1.43% of GDP in 2010 (Lipszyc et al., 2012: 11). Eligibility for LTC benefits is based on LTCI contributions from employees and employers for at least 2 years within a period of 10 years prior to application. Approximately 90% of the adult working population is covered.

However, insurance very often does not entirely cover the suggested care package, in which cases either means-tested transfers are provided through social assistance schemes, or the recipients and their family are responsible for paying for the remainder (OECD, 2011a). In addition, the package suggested by insurance funds is focused on para-medical care, rather than on home help which tends to be poorly covered. As in other countries, such as Italy and Spain, beneficiaries of cash allowances often employ home care workers operating in the grey economy. To regularise that situation the government in 2009 introduced financial incentives for standard secure employment, such as tax deductions of 20% of care costs up to EUR 4,000 a year. Some tax deductions are offered also for employment with a lower standard of security (so called "mini-jobs"), and for employment of immigrants on a 24-hour basis for no longer than three months (Degavre and Nyssens, 2012: 40).

Additionally, private insurance for supplementary LTC coverage is available in the market, and it is estimated that 1.58 million people have specific insurance for the remaining LTC costs, insurance that pays a set additional amount for LTC irrespective of actual cost, or use life insurance (OECD, 2011a).

Childcare & early education

German childcare provision has up until recently reflected the conservative welfare state tradition, putting responsibility for childcare primarily within the family and considering the role of formal care as supplementary. In that sense this 'residual' familialistic model for childcare differs from the model for long-term care that has evolved towards a social insurance system. However, following the Barcelona Summit in 2002, where the European Union set a target for 2010 of 33% of formal care coverage for children aged 0-3, and 90% for 3-6 years, public childcare provision was expanded dramatically with massive direct investment by the federal government in new day care places, especially for under two-year-olds (Goerres and Tepe, 2012). As a result 24% of children aged 0-2 were enrolled in formal day care in 2011, up from 10% ten years earlier (OECD Family database, 2014). The government's main rationale was that better public availability of childcare would increase female employment and fertility rates. Since 1 August 2013, every child between the ages of one to school entry age has the legal right to early childhood support in a day care centre or day nursery, and the public subsidy covers about 80% of the cost of a slot. However the 2013 target of reaching 35% coverage was not attained and average coverage remained 10 points below target, with substantial regional variation. Recent empirical evidence showed that fertility rates increased in the counties of West Germany that saw a large increase in childcare coverage (Bauernschuster et al., 2014). Parents can also claim back some of their childcare expenses through a form of tax relief, available to all. And since 2013, cash for childcare was introduced with a low monthly allowance to parents looking after a child at home for up to 36 months (EC, 2014). In total German public expenditure on childcare and early education services amounted to 0.5% of GDP in 2011 (OECD SOCX, 2015).

Italy

System of care provision (care regime)

Italy, which is portrayed as a "familialistic" welfare state (Esping-Andersen, 1990; Ferragina and Seeleib-Kaiser, 2011), relies mostly on family care and financial transfers for care services. With formal home care services relatively underdeveloped, the majority of support is provided through cash allowances.

Long-term care

The main form of social assistance for long-term care (LTC) is through a national disability cash benefit (called Attendance Allowance) that is paid by the National Social Security Institute to all citizens assessed as being unable to perform the basic activities of daily life[16]. This payment is monthly, universal, not restricted by age, and not linked to a means test or to social security contributions. No plan for purchasing LTC services is required to receive the benefit and recipients are free to spend the money as they want (OECD, 2011a). However, formal in-kind provision of care at home is almost non-existent (and that which does consists of mainly residential nursing care). With changing family structure and growing mobility, families increasingly struggled to provide adequate informal care to relatives. As a result, Italy saw an increase in low paid care provided by immigrants (both legal and illegal, and often irregular), a phenomenon that became known as the "migrant in the family" (Knijn and Saraceno, 2009). One estimate puts the proportion of care workers who are foreign-born (circa 2010) at 72% (OECD, 2011a). The Italian government made an attempt to regulate this grey economy by introducing in 2005 a tax benefit for employers (19% of the care-provider salary, but only up to EUR 399 per year) and tax deduction of their social security contributions (of between EUR 356 and EUR 666 per year). The benefits are limited to families that pay taxes whose joint income does not exceed EUR 40,000 per year (Degavre and Nyssens, 2012).

A second allowance, the Care Allowance, is financed by the regions and municipalities and takes the form of a cash payment or a voucher for purchasing home care services. It was introduced in 2000 and resulted in the creation of individual care plans for all care recipients. However, due to poor needs assessment processes and dysfunctional execution and monitoring of care plans, the effectiveness of the allowance is being disputed (Degavre and Nyssens, 2012). Nevertheless, this programme has resulted in the government focusing on the use of 'conditional monetary subsidies' tied to the use of a service.

Together public funding of in-kind LTC provision and cash benefits amounted to 1.9% of GDP in 2010 (Lipszyc et al., 2012: 11).

Childcare and early education

The Italian 'familialistic' type of welfare state also manifests itself in child care, mainly provided informally within the family. This is common practice, especially for very small children, when a grandmother is in good health and lives nearby. Enrolment in formal childcare for children under 3 has traditionally been very low – albeit with large regional variations (Del Boca et al., 2005). From 2007 the government focused on greatly increasing funding for formal childcare to comply with the 2002 Barcelona summit recommendations. By 2011, about 26% of 0-2 year olds were enrolled in day care facilities (EC, 2014). Enrolment for older children aged 3 to 5 has always been much higher, close to 100%, as part of the free pre-primary school system (Scuola materna) (EC, 2014). Existing public child care is well-subsidised and has high quality standards, similar to most Northern European countries. It is highly regulated in terms of opening hours and duration (limited to 7-7.5 hours a day), especially for the care of children under 3. In total Italian public expenditure on childcare and early education services amounted to 0.6% of GDP in 2011 (OECD SOCX, 2015).

Japan

System of care provision (care regime)

Japan, as an East-Asian 'conservative' welfare regime (Esping-Andersen, 1990; Ferragina and Seeleib-Kaiser 2011; Miyamoto, 2003), is characterised by limited social expenditure and relies on the family and local community as primary care providers. It also incorporates elements of a 'liberal' welfare state that gives priority to market mechanisms (Esping-Andersen, 1999).

Long-term care

Japan's long-term care provision faces increasing challenges, with a rapidly ageing population. It already has the highest share of the population aged over 80 among OECD countries, with demand for LTC services projected to double by 2050, while the potential workforce is expected to decline (OECD, 2011a). To tackle the changes, the government introduced in 2000 a Long-Term Care Insurance (LTCI) programme in addition to the compulsory national health care system. It was designed to support beneficiaries' independence and relieve the family of care duties. This system enabled for-profit entities to be subsidised to provide home care services in addition to existing non-profit ones. Residential care remained mainly non-profit.

In spite of the above changes, LTC expenditure in Japan remains below that of the Nordic countries systems – it spent 0.91% of its GDP on long-term nursing care services in 2011 (0.78% on public care and 0.13% on private care) (OECD SOCX, 2015). All LTC services are financed either by taxes collected from various levels of government (45% of the total), by social contributions – paid by those

16 Needs are assessed by Local Health Authorities (ASL) and the National Health Service (SSN) working in multidisciplinary teams. The classification system differs across regions, thus the number of beneficiaries varies. The final decision on granting an allowance is taken by the National Institute of Social Security (INPS) (OECD 2011a).

over 40 based on their incomes (45%) or by direct payment from the beneficiaries (10%) (OECD, 2011a).

Long-term care (LTC) services are available to all citizens over 65 and to people aged between 40 and 64 for illnesses such as Parkinson's, pre-senile dementia or stroke. Local government assesses a person's care needs and provides a personal LTC plan designed and organised by a "care manager". LTC insurance covers 90% of the cost of the services regardless of the type of provider (institution, community-based or at home) as long as they are certified (OECD, 2011a). To become a certified LTC worker a person has to obtain minimum training qualifications, depending on the service provided. Formal caregivers are protected under the Labour Standards Act, and are therefore entitled to benefits such as annual paid leave, maternity leave or child care leave, and workers' accident compensation. Additionally, they are offered training, counselling and post-care employment assistance by municipalities.

Childcare and early education

Japan has one of the lowest fertility rates (1.37 in 2009) in the world. To change this situation the government has made some efforts over the last decade to 'defamilialise' childcare and has introduced pro-natalist policy reforms (Soma and Yamashita, 2011).

Japan provides two types of formal care - kindergartens (school-based and usually for 3-5 year olds) and child day care facilities (welfare based and for children aged 0-5). In total, 9 out of 10 children aged 3 to 5 were enrolled in childcare facilities (Soma and Yamashita, 2011). Kindergartens attracted 56% of children enrolled in formal childcare in 2008, 80% of whom were in privately-run facilities (NIER, 2011). Day care centres can be licensed and operated by public or private sector organisations, or non-licensed and operated at home. They offer care also for children under 3 years old (26% enrolment rate in 2011). 54% of children aged 0-5 enrolled in day-care centres attended private facilities in 2008 (NIER, 2011). In 2000, the government introduced the Social Welfare Law that deregulated child care and allowed private sector child care facilities to grow. Some local governments cut their care budgets or privatised their day care centres in an attempt to bridge their fiscal deficits. This change was described as the withdrawal of the public sector from the primary provision of welfare services and a reduction in quality of care. Since then centres not previously approved as care providers by the authorities, as well as non-profit organisations, have become a viable alternative. This turn "from state to market" locates Japan closer to the 'liberal' welfare regimes. By 2011, total public expenditure on childcare and early education services was 0.13% of GDP, the lowest in the OECD countries studied (OECD SOCX, 2015).

United Kingdom

System of care provision (care regime)

The United Kingdom is defined as a 'liberal' welfare state (Esping-Andersen, 1990; Ferragina and Seeleib-Kaiser, 2011) and, according to this typology, acknowledges market dominance and does not engage significantly in public social and welfare provision, instead providing for basic needs on a means-tested basis. The UK is often classified as a liberal welfare state with a medium level of social stratification of provision, mainly because of its National Health Service (NHS), which provides in-kind transfers that are free at the point of use (Arts and Gelissen, 2002: 146). The administration and part of the funding of long term care and childcare services are devolved to the four nations of the UK, with slightly different levels of public funding, especially in Scotland.

Long-term care

The United Kingdom has introduced major reforms to long-term care (LTC) over the last 20 years in order to contain the costs of meeting the changing and increasing needs of its population. Since 1993, when major reforms to the social care system were carried out in England, dependent older people have been supported by means-tested locally run social care services and disability-related centrally administered social security benefits (Degavre and Nyssens, 2012: 34). The main role of local authorities has been to assess the needs of individuals, commission services and oversee the work of the local care quasi-markets (Malley et al., 2010). These markets are highly competitive (thus, there is a risk that price competition results in multiple providers engaging in a race 'to the bottom' in terms of quality through reducing remuneration for care workers) and at the same time highly regulated, standardised and supervised by national bodies (e.g., the Care Quality Commission).

There is a definite trend towards a 'personalisation agenda' to be delivered through a consumer-directed care model (Fernández et al., 2007) of means-tested cash benefits to purchase social and personal care services (Direct Payments introduced in 1997). Currently these are in addition to the remaining in-kind care services (mainly health-related nursing interventions), but further encroachment of Direct Payments into the Health Service is planned. Personal Budgets are becoming universal, but those who do not want to manage their own budgets can hand over the management of their budget to a third party (family, friends or the local authority). These payments have increased the shift away from formal, regulated professional care service provision towards unregulated informal carers, paid or unpaid, who despite emotional commitment, may lack necessary expertise (Lewis and Hobson, 1997; Pavolini and Ranci, 2008; Rostgaard, 2011).

In Scotland, social care is provided free of charge for all those aged 65 or more who need it (over and above existing cash benefits). Care in residential facilities is also free

but recipients have to pay for their accommodation cost (with means-tested support for low income people).

There is also income support available in all the UK nations for those in need of long-term care or their carers. Attendance Allowance (for those above 65) or Personal Independence Payment (for those aged 16-64, with increasingly strict eligibility conditions for those who can prove they are not fit for employment) are both flat-rate universal benefits. Severe Disability Premium, a top-up to the means-tested Pension Credit is also available for the severely disabled, as is the Carer's Allowance, for those who care full-time for a relative. Except for in Scotland, these allowances reflect the emphasis on direct cash transfers to pay for private care of the beneficiary's choice rather than subsidising the direct provision of services (Degavre and Nyssens, 2012: 35). For the UK as a whole, public in-kind LTC services amounted to 1.42% of GDP and cash benefits to 0.56% of GDP in 2010 (Lipszyc et al., 2012: 11).

Childcare and early education

In keeping with its liberal tradition, the UK has promoted private provision of childcare, either by the family or the market (for or not for profit). However, successive governments have increased the financial support available for parents of pre-school children over the last 15 years with the introduction in 2003 of childcare tax credits for families on low income and entitlement to some free childcare for 3 and 4-year-olds (later expanded to 15h per week and also to disadvantaged 2 year olds, with recent plans to increase hours to 30). Despite this, provision remains below demand and costs have been rising constantly with no sign of abating as increasing eligibility for subsidies fuels demand. This has led to price rises without attracting more provision because the level at which subsidies are paid has not risen in line with actual running costs. Use is also very unequal according to income with lower to middle income families reporting least access to affordable childcare (Van Lancker, 2013). Despite rising enrolment of young children in formal childcare, most attend day care facilities part-time, reflected in the high level of mothers' part-time employment. In 2011, about 35% of children under 3 attended formal childcare, but for an average of only 14 hours per week. The same holds for older children: although 90% of 3-5 year olds were formally enrolled, the average number of hours in childcare and pre-primary education was 20 per week (EC, 2014).

Families pay directly to the care provider. A recent reform is introducing a "tax-free" childcare scheme to replace the existing employer-based childcare voucher. The scheme to be rolled in from 2017 will pay for 20% of the cost of childcare, up to an annual limit per child, and will be available to employed parents who are not receiving tax credits.

In total the UK's public expenditure on childcare and early education services is around 0.4% of GDP, in the form of the three main subsidies available (childcare tax credit, voucher/tax-free childcare, and free entitlement to pre-school education), and hasn't changed much since 2010 (EC, 2014; Emmerson et al., 2015). However, since children enter primary education when 5 years old, total public spending on ECEC includes their first year, and was estimated to be 0.8% of GDP in 2011 (OECD SOCX, 2015).

United States

System of care provision (care regime)

The US has a 'liberal' welfare system (Esping-Andersen, 1990; Ferragina and Seeleib-Kaiser, 2011). Since the 1970s this has been called a 'workfare' system, where social insurance benefits are modest and means-tested, and citizens are urged to provide for their own welfare in the market, by paying for private insurance or employer-based benefits with their own incomes and earnings (Myles, 1998: 344).

Long-term care

Publicly funded long-term care (LTC) services are, as in England, targeted at people with low income. They are provided as a safety-net programme as a part of Medicaid. Medicaid is the primary funder of LTC, and is organised by the federal government, but states are responsible for its implementation. As a means-tested programme it is designed to help people with limited income to pay for medical expenses. It allows beneficiaries to choose a provider of home health care aid service or a doctor and delivers institutional nursing facility services. Only limited facility-based programmes are available for those who need assistance at home to live independently. Medicaid programmes are granted only as a last resort. In order to become an eligible person, an applicant must exhaust or "spend down" personal resources first. In some states beneficiaries have to contribute and make small co-payments (OECD, 2011a). Another programme, Medicare, is run by the federal government for older people and aims to cover hospital visits, specialist appointments and health care costs, i.e., hospice care and doctors' visits during hospitalisation. It does not cover any LTC services.

At the same time the US has one of the most developed markets for private insurance for people with higher incomes and accumulated assets. Although only 5% of the population over 40 is covered, the largest total payment for LTC comes from private contributions and out-of-pocket payments. Residential LTC is divided between facilities accepting Medicaid beneficiaries and privately funded ones that do not. Both kinds of service providers have to meet legal standards to operate. There is a great deal of variation in the intensity of care provided, as well as in its character (some do not include medical assistance) and price. By contrast home and community-based services (HCBS) are mostly provided by family or friends, with additional medical services provided by doctors. In some communities Adult Day Care Programs (ADC) or senior

centres have been established for the elderly during the day. Social workers provide some help with meeting daily needs, but meals provision and help with transportation are organised by private agencies (OECD, 2011a).

The introduction of a new voluntarily, publicly managed LTC insurance programme, called Community Living Assistance Services and Supports (CLASS), has been discussed for some years. According to this proposal, a monthly premium would be deducted via the payroll for enrolled persons to provide cover on a guaranteed-issue basis. They would become entitled to life-time cash benefits if they met eligibility criteria (based on degree of impairment), and had five years of contributions to the system and had worked at least three of those years (CLASS, 2010). However, in October 2011 the US administration decided to abandon it as "unworkable". In 2010, the Patient Protection and Affordable Care Act (ACA or Obamacare) was introduced. Its aim was to increase the quality and affordability of health insurance and lower the proportion of uninsured people (which reached 17% of the population in 2006). The Congressional Budget Office projected that the ACA would lower Medicare spending in the future (CBO, 2011), which might improve the chances of introducing CLASS.

Childcare and early education

The 'liberal' approach to child care in the US can be observed in the arguments used by the government to justify its subsidies and welfare programmes. They are based on three claims: improving equity - to give children the same opportunities to fulfil their potential, which is in line with the "American dream" narrative; second, encouraging parents to work — to make them employed and self-sufficient instead of enrolled in welfare; and third, addressing childcare market imperfections – if the social and intellectual development of a child can be improved and beneficial to society in the future, the subsidies are justified (Duncan and Giles, 1996).

In 1996 four different child care subsidy programmes for low income families were replaced by the single block grant – the Child Care and Development Fund (CCDF). The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) increased funding for child care and enabled states to set the subsidy programme rules as well as giving them choice in transferring up to 30% of the funds from the cash grant welfare programme (Temporary Assistance for Needy Families - TANF) into the CCDF and to spend that money directly on child care (Blau and Tekin, 2005). In 1999 all the CCDF allocation, of about USD 5 billion, and an additional USD 4 billion from the TANF block grant was spent on child care (Blank, 2002). To be eligible for subsidy parents must be employed, in school or in training and their children must be under the age of 13 (the cut-off age for eligibility for CCDF subsidies). Priority for funds is given to families with very low incomes who are not recently, currently, or likely future welfare recipients and to families with children with special needs. Still, most households receiving cash transfers from public assistance programmes are headed by single mothers (over 90% of TANF cases with an adult recipient in 1998) (Committee on Ways and Means, 2000: 437; Blau and Tekin, 2005).

In 2012, 26% of children under 3 and 70% of children aged 3-5 were enrolled in formal childcare facilities (US Census Bureau, 2015). Typical childcare fees are amongst the highest in OECD countries, even accounting for cash or tax subsidies (almost non-existent in the US) (OECD Family database, 2014). In total US public expenditure on childcare and early education services was 0.37% of GDP in 2011 (OECD SOCX, 2015).

Care Economy, who cares?

Appendix 2 simulation methodology

General method

This analysis uses official input-output tables produced by national statistical offices to calculate the full employment effects of additional demand, created for example by government spending, for the products of a particular industry. The methodology used is well-known. In this analysis we have followed closely the methods used by the Scottish government's statistical office (see Scottish Government (2015), referred to below as the "Scottish methodology notes").

This is how the different ways in which employment is generated is explained:

If there is an increase in final demand for a particular product, we can assume that there will be an increase in the output of that product, as producers react to meet the increased demand; this is the **direct effect**. As these producers increase their output, there will also be an increase in demand on their suppliers and so on down the supply chain; this is the indirect effect (also called Type I). As a result of the direct and **indirect effects,** the level of household income throughout the economy will increase as a result of increased employment. A proportion of this increased income will be re-spent on final goods and services: this is the **induced effect** (also called Type II).

[http://www.gov.scot/Topics/Statistics/Browse/Economy/Input-Output/Mulitipliers](emphasis added)

In this research we are interested in **employment effects** and we find these by calculating the total direct, indirect and induced employment changes due to a unit increase in final demand. We also calculate the direct, indirect and induced employment effects separately. We can then multiply any suggested additional demand by the total employment effect, or any component of it, to calculate the amount of additional employment generated.

Type I employment effects (indirect)

1) The process starts with published symmetric tables, giving the quantity of output of industry used directly in industry (where and are industry rows and columns respectively, with rows showing supply and columns use):

1. These tables also include rows for imports and for gross value added by industry, so that the column totals give the total output of each industry.
2. They also include columns for the composition of final demand, from government, consumers (households), gross capital formation and exports.
3. Such tables are produced by national statistical offices, but some provide product-by-product tables (P x P) instead of industry by industry (I x I). The methodology used subsequently is unchanged, with the results needing to be interpreted in terms of products rather than industries.
4. See Scottish methodological notes for an explanation of how they derive symmetric tables, which is not entirely straightforward. Slightly different assumptions are made by each statistical office.

2) Calculate from the symmetric table, or find also from the statistical office, the direct requirements matrix, **A** , whose cells gives the amount of the product of industry *i* needed **directly** to produce a unit of the product of industry *j*,

- W_j the total output of industry, is calculated as the total of the th column of the symmetric table.
- The direct requirements matrix, A, is calculated from the symmetric table by dividing each cell by its column total.

3) Calculate from the direct requirements matrix, or find also from the statistical office, the Leontief inverse matrix or 'total requirement' matrix,**L**, whose elements capture the whole supply chain and give the **total** amount of the product of industry needed **directly and indirectly** to produce a unit of the product of industry *J*.

- The total requirement matrix,**L**, is calculated from the direct requirement matrix, by $\mathbf{L = I + A + A^2 + A^3 + \ldots = (I - A)^{-1}}$, where **I** is the identity matrix.
- The Type I output multiplier for industry *j* is equal to $\mathbf{\Sigma_i L_{IJ}}$.

4) From published figures on employment by industry, calculate the direct employment vector, ***w***, whose components *w* give the **employment directly** required to produce a unit of the product of industry *j*.

- w_j is calculated as employment in industry *j* divided by its total output *Y*. This can be headcount or FTE.
- Similarly a vector recording gender-specific employment by industry can be calculated we used the proportion of women employed). Again this can be headcount or FTE.
- Note that FTE numbers and the gender breakdown of employment were not always available for industries categorised as in the I-O tables. If the employment data were less disaggregated, e.g., in Australia, the same

gender breakdown was applied to all sub-divisions. Where the employment data were more or differently disaggregated, e.g., for government sectors of the US, the gender breakdown was fine-tuned for each industry by using other sources on a case-by-case basis.

5) Employment effects (and corresponding gendered employment effects) for each industry j are calculated as follows:

- The **direct effect** is w_j, the direct labour needed to produce a unit of output of industry *j*.
- The **total Type I effect** (direct plus indirect) is $\mathbf{\Sigma}_i\ w_i\ \mathbf{L}_{ij}$, the sum of all the labour required directly and indirectly to produce an additional unit of output of industry *j*.
- The **indirect effect** is calculated as the difference between the total Type I and the direct effect $\mathbf{\Sigma}_i\ w_i\ \mathbf{L}_i - w_j$ which gives the labour required indirectly to produce a unit of output of industry *j*.

6) The employment multiplier(s), the ratio of indirect to direct effects, can then be calculated (including by gender, FTE etc.).

7) Effects on employment rate(s) can also be calculated.

- The percentage points rise in the employment rate (by gender) equals the total employment effect divided by the working age population (of that gender).

Type II employment effects (induced)

1) For type II effects, we augment the direct requirements matrix A by adding the household sector. Using data from the symmetric table, we add a column to matrix A that gives the composition of consumer demand by industry per unit of household income and a row that gives compensation of employees (and ideally also including income from self-employment but not profits) per unit of output of each industry.

2) The additional column of consumer demand by industry is derived from the corresponding column of the symmetric table divided by total household income. The latter can usually be found in the National Accounts (household sector) data. Where household income is not directly available, we used the total household expenditure divided by (1 - gross saving ratio).

- The sector of households usually includes non-profit institutions serving households (unless separated) and no adjustment has been made to account for this category

3) Calculations are then the same as before, creating an augmented type II Leontief inverse matrix, $\mathbf{L}^i$, and using that to calculate:

- The **total Type II effect** (direct plus indirect plus induced) is $\mathbf{\Sigma}_i\ w_i\ \mathbf{L}_{ij}$, the sum of all the additional labour required, directly, indirectly and induced, when an additional unit of output of industry is produced.
- The **induced effect** is calculated as $\mathbf{\Sigma}_i\ w_i\ \mathbf{L}_{ij} - \mathbf{\Sigma}_i\ w_i\ \mathbf{L}_{ij}$ the difference between the total Type II and total Type I effects. This gives the employment induced by additional household consumption when an additional unit of output of industry is produced.

Some caveats

Some statistical offices calculate such employment effects themselves, but many do not, although they provide the input-output tables and other data needed for their calculation. One reason some do not is that the derivation of employment effects involves making some quite strong assumptions.

Below we list the assumptions that are most relevant to our analysis and, where we can, say the likely effects of them not holding.

1. **Available supply.** It is assumed that the economy has no supply-side constraints, that is, that any additional inputs required, including labour, can be found or produced without taking resources away from existing activities. If this is not the case, then employment effects will be overstated. Actual employment effects are likely to be dependent on the extent to which the economy is operating at or near full capacity or whether there is unemployment.
2. **No effects on wage or price levels.** If there are any constraints on the availability of inputs, such as skilled labour, wages and prices would be expected to rise, and therefore to reduce the quantity that any given amount of expenditure can purchase. Such 'crowding out' effects are assumed not to occur. For this reason, especially where there are skill or other labour shortages, employment effects may be overestimated
3. **No change in methods of production.** It is assumed that additional demand does not lead to a change in how industries produce their output and therefore their input requirements (and how these are sourced). This may not hold where there are fixed capital requirements, economies of scale or a range of ways of producing the same output. If this assumption does not hold, but the previous two assumptions still did, employment effects might be over or underestimated.
4. **All households spend in the same way and continue to do so.** In calculating induced effects, final demand from households is assumed to retain its existing composition and simply rises or falls in proportion to household income. If additional employment leads households to save more, this assumption does not hold and employment effects are likely to be slightly exaggerated. Further this assumption will not hold if any additional income generated through employment goes to households whose spending patterns differ systematically from the average, though without investigating the spending patterns of different types of households, we cannot know whether this would lead to over or underestimation of employment effects.

See Paul Gretton (2013) for a more complete analysis of the assumptions and potential pitfalls of this sort of analysis.

Appendix 3 Data sources and classification

Data sources

Australia	Australian Bureau of Statistics
Denmark	Statistics Denmark database
Germany	Eurostat
Italy	Eurostat
UK	Eurostat ONS
Japan	Statistics Japan
US	Bureau of Economic Analysis Bureau of Labor Statistics

Classifications of industries

Country classification of industries used in their Input-Output tables differ but are broadly in line with the international standard classification (NACE – Rev2), used in the Eurostat tables (and in Denmark).[17]

Europe

The differences between Denmark and the other three European countries are mainly to do with level of aggregation of industries. Denmark provides tables using 117 industry divisions (NACE 3 digit) whereas Eurostat provides tables using only 64 industries (NACE 2 digit).

Statistics Denmark distinguishes between industries 87 and 88 whereas Eurostat (for Italy, Germany and the UK) doesn't.

Division 87, "residential care activities", in NACE rev2, is composed of the following categories:

87.1	Residential nursing care activities	Nursing care facilities
87.2	Residential care activities for mental retardation, mental health and substance abuse	Provision of residential care and treatment for patients with mental health and substance abuse illnesses by paramedical staff and social workers
87.3	Residential care activities for the elderly and disabled	Provision of residential care and treatment for elderly and disabled by paramedical staff and social workers
87.9	Other residential care activities	Social work activities provided on a round-the-clock basis directed to provide social assistance to children and special categories of persons with some limits on ability for self-care (except elderly, disabled and persons with mental retardation)

Division 88, "social work activities without accommodation", includes the following categories:

88.1	Social work activities without accommodation for the elderly and disabled	Social, counselling, welfare, referral and similar services which are aimed at the elderly and disabled, without accommodation
88.91	Child day-care activities	Child day-care activities
88.99	Other social work activities without accommodation n.e.c.	Other social work activities without accommodation n.e.c. Charitable activities like fund-raising or other supporting activities aimed at social work

For the construction sector (sector F of NACE 1 digit), again Statistics Denmark distinguishes between its three different divisions, whereas Eurostat aggregates all of them. Sector F includes the complete construction of residential and non-residential buildings (division 41), the complete

17 See explanatory notes and list of industries by level of detail at http://ec.europa.eu/eurostat/documents/1965800/1978839/NACE_rev2_explanatory_notes_EN.pdf/b09f2cb4-5dac-4118-9164-bcc39b791ef5

construction of civil engineering works (division 42), as well as specialised construction activities, if carried out only as a part of the construction process (division 43), which includes maintenance and repair (e.g., plumbing, plastering etc.). Division 41 is used in our simulations.

US

The US categories are based on the North American classification (NAICS).

See details: https://www.census.gov/eos/www/naics/2012NAICS/2012_Definition_File.pdf

The construction sector (sector 23) is the aggregate of the following categories:

230301	Nonresidential maintenance and repair
230302	Residential maintenance and repair
233210	Health care structures
233230	Manufacturing structures
233240	Power and communication structures
233262	Educational and vocational structures
233293	Highways and streets
2332A0	Commercial structures, including farm structures
2332B0	Other nonresidential structures
233411	Single-family residential structures
233412	Multifamily residential structures
2334A0	Other residential structures

The nursing and residential care facilities industry (623) is the aggregate of the following categories:

6231	Nursing care facilities (skilled nursing facilities)
6232	Residential intellectual and developmental disability, mental health, and substance abuse facilities
6233	Continuing care retirement communities and assisted living facilities for the elderly
6239	Other residential care facilities

The social assistance industry (624) comprises the following:

6241	Individual and family services
6242	Community food and housing, and emergency and other relief services
6243	Vocational rehabilitation services
6244	Child day care services

However, social care provided in people's homes, which is included in NACE rev 2 division 88 above for European countries, is not part of the same classification in the US, since it is included in 'medical ambulatory services'. Indeed home health care services (6216), part of industry 621 (Ambulatory Health services) in the input-output tables, sits alongside other medical services provided outside hospitals. It is described as follows:

This industry comprises establishments primarily engaged in providing skilled nursing services in the home, along with a range of the following: personal care services; homemaker and companion services; physical therapy; medical social services; medications; medical equipment and supplies; counselling; 24-hour home care; occupation and vocational therapy; dietary and nutritional services; speech therapy; audiology; and high-tech care, such as intravenous therapy.

Japan

See note: http://www.soumu.go.jp/english/dgpp_ss/seido/sangyo/san07-3.htm

For the purpose of the input-output analysis, Japan uses a different classification than its Japan Standard Industrial Classification, with the main categories of interest shown in the tables below

For constructions:

4111	-011	Residential construction (wooden)	**411**	Building construction
4111	-021	Residential construction (non-wooden)		
4112	-011	Non-residential construction (wooden)		
4112	-021	Non-residential construction (non-wooden)		
4121	-011	Repair of construction	**412**	Repair of construction
4131	-011	Public construction of roads	**413**	Public construction
4131	-021	Public construction of rivers, drainages and miscellaneous public construction		
4131	-031	Agricultural public construction		
4191	-011	Railway construction	**419**	Miscellaneous civil engineering and construction
4191	-021	Electric power facilities construction		
4191	-031	Telecommunication facilities construction		
4191	-099	Miscellaneous civil engineering and construction		

There is no explicit detail of how the two industries of social insurance and welfare and nursing care used in the input-output tables were constructed from the standard classification shown in the list below. Presumably, sectors 851-53 are likely to be included in the social insurance and welfare industry (643) and 854 could provide the bulk of industry 644 nursing care. However, the correspondence between residential care and non-residential care is not easy, since sector 854 also includes 8544 "home visit care services" for example. The main distinction is between 853, which provides care for children, and 854 and 855, which provide care for the elderly and for the disabled respectively, residentially or not.

See detailed explanation here: http://www.soumu.go.jp/main_content/000323828.pdf

85 SOCIAL INSURANCE, SOCIAL WELFARE AND CARE SERVICES

850 ESTABLISHMENTS ENGAGED IN ADMINISTRATIVE OR ANCILLARY ECONOMIC ACTIVITIES

8500 Head offices primarily engaged in managerial operations

8509 Miscellaneous establishments engaged in administrative or ancillary economic activities

851 SOCIAL INSURANCE ORGANISATIONS

852 WELFARE OFFICES

853 CHILD WELFARE SERVICES

8531 Day nursery

8539 Miscellaneous child welfare services

854 WELFARE SERVICES FOR THE AGED AND CARE SERVICES

8541 Special nursing homes for the elderly

8542 Health care facilities for the elderly requiring long-term care

8543 Day care short stay services for the aged

8544 Home-visit care services

8545 Group homes for the elderly with dementia

8546 Fee charging homes for the aged

8549 Miscellaneous welfare services for the aged and care services

855 WELFARE SERVICES FOR DISABLED PERSONS

8551 Residence support services

8559 Miscellaneous welfare services for disabled persons

859 MISCELLANEOUS SOCIAL INSURANCE, SOCIAL WELFARE AND CARE SERVICES

8591 Offender rehabilitation services

8599 Miscellaneous social insurance, social welfare and care services

Taken from http://www.soumu.go.jp/english/dgpp_ss/seido/sangyo/san13-3a.htm#p

Australia

Australia uses the Australian and New Zealand Standard Industrial Classification (rev 2006) ANZSIC.

For the construction division, four groups are distinguished and are broadly in line with the NACE rev divisions with residential building (although distinguished in the Australian classification from non-residential building), heavy engineering and civil construction, and construction services, which include all the preparatory works, installation (plumbing etc.) and repair, as in NACE division 43.

With respect to healthcare and social assistance services (division Q), Australian input-output tables distinguish the following subdivisions:

Health care services (subdivision 84, hospitals, and 85, medical services).

Residential care and social assistance (subdivision 86, residential care, and 87, social assistance, the latter including 8701, child day care services, which excludes preschool education, similar to the other countries' treatment of preschool education).

See details here: http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/5718D13F2E345B57CA257B9500176C8F/$File/12920_2006.pdf

Overview of occupational composition of care services

Japan

The **social insurance and welfare** sector is dominated by five occupations (97% of total):

- Childcare workers (34%)
- 0527102 Home visiting care workers (27%)
- 0527101 Care workers in medical and welfare facilities (16%)
- General clerical workers (14%)
- Other social welfare specialists (other than childcare workers) (8%)

The **nursing care sector** is concentrated as follows:

- 0206000 Healthcare professionals (34%) of whom more than half are 0206026 nurses (20% of total)
- 0207037 Social welfare specialists professionals (other than childcare) (8%)
- 0527101 Care workers in medical and welfare facilities (44%)

Note that in the Japanese classification of occupations, childcare workers and kindergarten teachers are classified as professionals whereas care workers and home

visiting care workers are in service workers occupations (with hairdressers, bartenders and travel guides) (SOC Rev 5 2009).

US

623 – Residential care is mainly composed of:

- 21 Community and social service occupations (social workers, counsellors, etc.) (6%)
- 29 Health practitioners and technicians (17%)
  - 291141 Registered nurses (6%)
  - 292061 Vocational nurses (8%)
- 31 Healthcare support (34%)
  - 311011 Home health aides (7%)
  - 311014 Nursing assistants (25%)
- 35 Food preparation and related (10%)
- 39 Personal and care services (14%)
  - 399021 Personal care aides (9%)

624 – Social assistance is mainly composed of:

- 21 Community and social service occ. (16%)
- 25 Educational occ. (16%)
  -252010 Preschool and kindergarten teachers (9%)
- 31 Healthcare support (7%)
  - 311011 Home health aides (5%)
- 39 Personal and care services (35%)
  - 399011 Childcare workers (11%)
  - 399021 Personal care aides (20%)

Australia

In Australia, the three main care occupations are:

- **4211 child carers:** provide care and supervision for children in residential homes and non-residential childcare centres
- **4231 aged and disabled carers:** provide general household assistance, emotional support, care and companionship for aged and disabled persons in their own homes
- **4233 nursing support and personal care workers:** provide assistance, support and direct care to patients in a variety of health, welfare and community settings

(No statistics on distribution of these occupations by industry)

Europe

The main care occupations within ISCO-2008 are grouped in category 53 (ISCO 2 digit) within ISCO 1 digit group 5 of services and sales workers and sit along with personal services workers (51)such as waiters and hairdressers, sales workers (52), and protective services workers (54).

Category 53 is composed of the following sub-groups:

- 531 Child care workers and teachers aides
- 5311 Child care workers
- 5312 Teachers aides
- 532 Personal care workers in health services
- 5321 Health care assistants
- 5322 Home-based personal care workers
- 5329 Personal care workers in health services not elsewhere classified

Denmark has employment and earnings data for each of these detailed occupations. Italy and Germany do not.

The UK does not have it either when using ISCO but has a different classification used in its more detailed national earnings and employment data.

UK

The UK uses a slightly different classification (SOC 2010) for its national employment and earnings data with the following categories:

Within the main occupational category 6 of Caring, leisure and other services occupations, the following highlighted occupations are relevant:

612 Childcare and related personal services
6121 Nursery nurses and assistants
6122 Childminders and related occupations
6123 Playworkers
6125 Teaching assistants
6126 Educational support assistants

And

614 Caring personal services
6141 Nursing auxiliaries and assistants
6142 Ambulance staff (excluding paramedics)
6143 Dental nurses
6144 Houseparents and residential wardens
6145 Care workers and home carers
6146 Senior care workers
6147 Care escorts
6148 Undertakers, mortuary and crematorium assistants

Appendix 4 Earnings in different care occupations

UK (2014)

	Total	Men			Women		
	Total in employment (000)	Number (000)	% PT	Mean weekly earnings (£)	Number (000)	% PT	Mean weekly earnings (£)
Total [2]	**30,537**	**16,347**	**12.7%**	**605.20**	**14,190**	**42.4%**	**394.80**
Benchmark							
2231 Nurses	590	68	13.3%	622.70	522	34.1%	515.00
2315 Primary and nursery education teaching professionals	431	51	10.5%	639.60	381	28.9%	566.20
Care occupations							
612 Childcare and related personal services	829	46	28.1%	243.90	783	47.8%	224.80
6121 Nursery nurses and assistants	174	0	-	291.00	171	41.8%	232.20
6122 Childminders and related occupations	129	0	-	139.20	129	38.4%	254.00
6123 Playworkers	34	0	-	127.90	30	77.7%	138.30
6125 Teaching assistants	356	28	31.9%	255.80	328	52.2%	230.80
6126 Educational support assistants	136	11	0.0%	255.10	125	44.9%	220.90
614 Caring personal services	1,309	242	21.5%	323.20	1,067	43.8%	266.90
6141 Nursing auxiliaries and assistants	300	62	15.3%	341.70	238	44.7%	295.40
6145 Care workers and home carers	792	132	27.5%	294.70	660	44.8%	245.00
6146 Senior care workers	72	13	0.0%	377.90	59	28.0%	323.90

Note: Mean earnings are for employees only (from ASHE, 2014). Median earnings not reliable for small occupations. Population in employment include both employees and self-employed (ONS Labour Force Survey 2014)

Denmark (2013)

	Total			Men			Women		
	Hourly earnings (DKK)	Monthly earnings (DKK)	Full-time employees	Hourly earnings (DKK)	Monthly earnings (DKK)	Full-time employees	Hourly earnings (DKK)	Monthly earnings (DKK)	Full-time employees
All occupations	**290.87**	**38,525**	**1,428,117**	**309.21**	**41,400**	**704,568**	**270.72**	**35,368**	**723,548**
Benchmark									
2221 Nursing professionals	293.11	37,529	49,063	306.75	40,288	2,134	292.46	37,397	46,929
2341 Primary school teachers	292.7	38,146	57,908	294.97	38,963	18,560	291.57	37,742	39,348
Caring occupations									
53 Personal care workers	219.03	28,138	141,501	206.76	27,016	21,285	221.31	28,347	120,216
531 Child care workers and teachers aides	199.51	25,688	44,352	189.15	24,689	9,279	202.38	25,965	35,073
5311 Child care workers	199.45	25,680	44,319	188.95	24,662	9,256	202.35	25,961	35,064
532 Personal care workers in health services	228.12	29,280	97,149	220.57	28,841	12,006	229.24	29,344	85,143
5321 Health care assistants	241.39	30,924	45,009	235.32	30,696	6,761	242.51	30,966	38,248
5322 Home-based personal care workers	219.14	28,153	45,329	204.63	26,910	4,381	220.8	28,295	40,949
5329 Personal care workers in health services not elsewhere classified	237.28	31,561	1,384	210.66	28,302	180	241.77	32,111	1,204

Note: data are for full-time employees only (source StatBank from Statistics Denmark http://www.statbank.dk/statbank5a/default.asp?w=1280)

Australia (2014)

	Men	Women	Total
	AVERAGE WEEKLY TOTAL CASH EARNINGS (AU$)		
All occupations	1,429.80	940.20	1,182.40
Benchmark			
2411 Early childhood (pre-primary school) teachers	797.50	1,073.00	1,070.20
2412 Primary school teachers	1,378.00	1,263.80	1,279.20
2544 Registered nurses	1,553.00	1,191.40	1,220.10
Care occupations			
4211 Child carers	397.50	543.30	536.90
4231 Aged and disabled carers	728.40	667.50	679.00
4233 Nursing support and personal care workers	856.10	651.20	695.80

All employees,

2014 Source: Australian Bureau of Statistics - 63060DO011_201405 Employee Earnings and Hours, Australia, May 2014

US (2014)

	All industries		61 Education		623 Residential care		624 Social assistance	
	Employment (000)	Hourly median wage ($)	Employment (000)	Hourly median wage ($)	Employment (000)	Hourly median wage ($)	Employment (000)	Hourly median wage ($)
All occupations	135,128	17.09	12,759	21.51	3,258	12.7	2,768	11.61
Benchmark								
Elementary and middle school teachers (252020)	1,998	27.44	1,983	27.46		-	1	20.51
Registered nurses (291141)	2,687	32.04	73	27.72	195	28.77	22	27.97
Care occupations								
Preschool and kindergarten teachers (252010)	511	16.39	228	23.23		-	252	12.51
Home health aides (311011)	799	10.28	0	10.75	238	10.41	151	10.05
Nursing assistants (311014)	1,428	12.07	8	13.42	804	11.55	26	10.51
Childcare workers (399011)	583	9.48	132	11	28	11.34	316	9.19
Personal care aides (399021)	1,257	9.83	4	11.9	295	10.26	550	9.98

Notes: wages for school teachers are only available annually so the figure is the mean hourly wage assuming 2080h annual pay (40h pw).
Source: Bureau of Labor Statistics, May 2014 – all employees

(US continued) Earnings by gender for full-time employees (2014)

	Total		Men		Women	
	Number of workers (000)	Median weekly earnings ($)	Number of workers (000)	Median weekly earnings ($)	Number of workers (000)	Median weekly earnings ($)
Total, full-time wage and salary workers	106,526	$791	59,450	$871	47,076	$719
Benchmark						
Elementary and middle school teachers	2,730	980	534	1,096	2,196	956
Registered nurses	2,309	1,090	245	1,190	2,064	1,076
Care occupations						
Preschool and kindergarten teachers	499	634	13	-	486	625
Nursing assistants and home health aides	1,364	472	164	528	1,200	466
Childcare workers	406	442	21	-	385	444
Personal care aides	667	434	133	465	534	425

Source: Bureau of Labor Statistics, May 2014 – full-time employees

Europe (2010)

Eurostat data from the European Structure of earnings Survey (only establishment of 10 or more employees).

Occupational distribution of earnings and employees for the industry 'Human Health and social work activities'.

Monthly earnings (EUR)								
	Denmark		Germany		Italy		UK	
	Men	Women	Men	Women	Men	Women	Men	Women
Total	4,018	3,389	3,383	2,527	3,347	2,350	3,895	2,544
Managers	6,172	5,188	5,727	3,979	6,036	5,438	4,659	3,513
Professionals	4,939	3,889	5,840	3,704	6,326	4,855	5,622	3,490
Technicians and associate professionals	4,297	3,629	2,629	2,483	2,445	2,269	2,943	2,390
Clerical support workers	3,185	3,189	2,178	2,310	1,996	2,010	2,295	1,885
Service and sales workers	2,888	2,936	2,052	1,985	1,790	1,587	1,904	1,727
Skilled agricultural, forestry and fishery workers	:	:	2,112	1,818	1,798	2,246	1,593	1,822
Craft and related trades workers	:	:	2,567	1,940	2,039	1,405	2,649	2,064
Plant and machine operators and assemblers	:	:	1,697	1,781	2,150	1,830	1,817	1,752
Elementary occupations	2,957	2,655	1,759	1,762	1,821	1,547	1,784	1,553

Employees (000)								
	Denmark		Germany		Italy		UK	
	Men	Women	Men	Women	Men	Women	Men	Women
Total	114,088	517,297	683,005	2,259,498	349,778	733,724	774,435	2,549,184
Managers	4,982	8,739	18,315	21,936	15,628	10,885	57,394	117,071
Professionals	49,255	197,553	176,855	321,247	84,089	70,679	341,061	940,033
Technicians and associate professionals	6,501	41,940	296,311	1,257,104	123,889	364,935	95,621	280,128
Clerical support workers	2,137	15,715	27,945	143,592	49,009	95,158	40,166	300,239
Service and sales workers	45,027	229,048	95,354	308,880	37,953	144,069	168,743	800,602
Skilled agricultural, forestry and fishery workers	:	:	4,645	1,160	:	:	:	:
Craft and related trades workers	:	:	21,033	6,221	8,948	5,619	10,813	2,173
Plant and machine operators and assemblers	:	:	18,751	13,198	7,442	1,095	8,005	1,904
Elementary occupations	4,744	24,147	21,225	184,509	22,190	41,234	34,725	103,391

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